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This document details the procedures and results of a 1964-66 evaluation of volunteering middle-class suburban New York schools with primary classes nongraded in reading and arithmetic. The evaluation is more than a comparison of pupil progress in nongraded and graded classes; other variables are also correlated in the areas of school organization, beliefs and performances of teachers and principals, and influences on pupil progress by grade placement and demographic and community characteristics (as well as by school and educator characteristics). The extensive section on the methodology of comparing students and schools includes a discussion of three evaluation instruments which were developed for the study and which are used to assess the knowledge and acceptance by educators of nongraded principles (Education Opinion Inventory), the extent to which teachers recognize and accommodate student differences through classroom organization and materials (Nongraded Primaries in Action), and principals' perceptions of their responsibilities and nongraded principles (Principal Interview Guide). Correlations of all variables between graded and nongraded classes yielded insignificant values almost without exception. Conclusions emphasize that differences between nongraded and graded schools are thus not a matter of school organization or certain beliefs and performances of educators, rather greater student involvement and control in monitoring and guiding their own development would characterize a truly nongraded class. (LP)

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EVALUATION OF THE NONGRADED PRIMARY

by

WILLIAM P. McLOUGHLIN
Assistant Dean for Graduate Programs

St. John's University
Jamaica, New York

April, 1969

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St. John's University
Jamaica, New York

FOREWORD

This study evaluated the contributions of contemporary nongraded schools to the education of children. Some will read it and realize it fell short of perfect fulfillment of its multiple goals for many reasons. In other respects far more was accomplished by the study than initially anticipated.

Some will endorse the dependent variables selected as appropriate for a study of this type; other will not. Be this as it may. Schools nongrade for numerous reasons. No pretense is offered that these variables are a flawless reflection of all of these reasons. However, they are sufficiently kindred to those of the participating schools to permit them to cooperate in the investigation. Surely, too, the variables selected are of sufficient concern to others contemplating nongrading their schools that they will provide them with some understandings of what nongrading is and the contributions it can reasonably be expected to make to the education of children.

Hopefully, the report is uncontaminated by the author's biases about the nongraded school. Essentially the nongraded school's position on learning and education is unassailable. It is virtually a pedagogical t$\overset{au}{\text{or}}$tology. It simply asks schools to teach children what they have not learned without a-priori assumptions about how much and how fast they ought to learn. Thinking men find it difficult to dispute the notion that schools should teach children what they can learn when they can learn it. This, basically, is the nongraded school's educational doctrine.

However, accepting the soundness of this position is not tantamount to accepting the soundness of every educational innovation introduced into schools in the name of nongraded instruction. Not only are many of them considerably less than idealized nongraded instruction, but many are diametrically opposed to the educational objectives of the nongraded school. So, the practice of supportable theory can not always be endorsed. For this reason an extraordinary effort was made to put forth in the clearest possible terms what the schools in this study did to become nongraded. This is essentially what is being evaluated, not the theoretical nongraded school.

Within this context the evaluation has hopefully contributed to our knowledge about the nongraded school, what it is and what it is not, what it can do and what it can not.

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CHAPTER I

INTRODUCTION

The graded school so dominates contemporary education that one has difficulty in imagining a world without it. But the graded school is a relatively recent educational development. Colonial America had no graded schools. Lack of structure for learning and schooling characterized this period. The home was the school and the kitchen, a spare room, or a vacant shop the classroom. When parents were unable to instruct their children, dame schools were available where instruction differed little from that found in the typical home. It was modest and unstructured. The teacher met with a small group of children without regard to age and taught them what they had not learned.

The spirit of the dame school persisted long after its demise. In countless little red school houses studding the rustic landscape children of various ages attended a common school for instruction by the same teacher. In the emerging urban centers, the Lancaster schools were the counterparts of the one-room rural schools. Both of these organizations however, were short-term, stop-gap measures destined to crumble under the relentless pressures of increases in school enrollments. By the middle of the 19th century urbanization was a reality. Between 1830 and 1860 the number of people living in communities of over 8,000 more than doubled and the pressure for "efficient" school organization increased. Alternative patterns for school organization became a paramount educational objective.

The apparent solution to the dilemma came from J.D. Philbrick. In 1848 he organized Boston's Quincy Grammar School into the nation's first graded school and a new sinewy alternative to the one-room school was available. The plan was deceptively simple. Children would be grouped, initially, by chronological age, assigned to one teacher for a year, and expected to acquire in that time a specified amount of learning. Education had been standardized and children's school performance could be methodically monitored.

Despite its magnetism, the introduction of the graded school did not mark the beginning of the educational millenium. Rather, it ignited an educational controversy that was to range for decades of decades. With alarming consistency, children did not conform to the preconceived and inflexible standards set for them. Altering grade standards was an incontestible sign of softness and a relentless policy of nonpromotion was instituted to preserve standards. At the start of the 20th century nonpromotion was an accepted educational practice. It was not uncommon, for example, for one out of every two pupils repeated at least one grade.[1] Most grade failures occurred in the early years of school and a poling up of "over-aged" students in the primary grades was the rule rather than the exception.

If nonpromotion realized its intended purposes it may have been tolerable though painful. If children truly worked harder, achieved more, adjusted better and the range of differences in a class was truly reduced, then nonpromotion could have been justified. It did not. At best these were little more than pious rationalizations without foundation in reality. The empirical evidence on the benefits of nonpromotion is overwhelming and uncompromising; it does little to bring children up to grade standard, reduce the range of difference within a classroom, or produce better adjusted children. If anything, nonpromotion aggravates the very conditions it purports to alleviate.

The graded school was intolerable. Perceptive educators questioned the value of schools which encouraged the able to idle and the slow to drop out of school as early as possible. Dozens of variations on the graded school theme were conceived, tried for a time, and eventually abandoned. Each of these plans had one common feature: they tried to adjust the child to the curriculum and never the curriculum to the child.

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[1] Robert E. Larson, "Age-Grade Status of Iowa Elementary Pupils (unpublished Doctoral dissertation, State University of Iowa, 1955.)

But the graded school, with all its limitations, answered the educational needs of its time. Before subjecting it to the harsh judgement of impersonalized history an assessment of the mitigating conditions present in the milieu which spawned it should be reviewed. Rapid industrialization, urbanization, and population expansion exerted immeasurable pressures on the emerging public school system of the 19th century. To say that the existing school structure was unable to cope with these stresses is to understate the case. Teachers were scarce; professionally trained teachers, nonexistant. The very goals of education were undergoing rapid and poorly defined alterations. Education was no longer the prerogative of the privileged but the birthright of all and schools all but foundered in the rising seas of school enrollments. Despite these vicissitudes, the defects of the graded school remain patent and incontestable. But these conditions have passed and with them should go the graded school.

One contending proposal for school organization has been put forward, the nongraded school. It is 180 degrees away from the position assumed by the graded school. It finds its organizational principles in the very differences in children which the graded school ignores or attempts to group away. In the graded school time is a constant. Each child must master the grade's work by the end of the year or repeat the grade. In the nongraded school time is a variable. The child's unique learning mechanism, not the calendar, sets instructional pace and, ideally, learning, like maturation, is an uninterrupted and continuous process. If the postulates of the nongraded school are accepted, grade levels become untenable and must be replaced by a school program dedicated to continuous learning commensurate with the child's maturational level.

The essential difference between the graded and nongraded school stands out in bold relief. The graded school is a system for sectionalizing children, the nongraded school is not. Its rationale is derived from the grading of the knowledge taught while the tenets of the nongraded school flow from the realities of child development. The graded school focuses on the calendar when scheduling learning activities; the nongraded school, on the child. The graded and nongraded schools are poles apart. The graded school is organized around conformity and rigidity; the nongraded, around flexibility and adaptability. The nongraded school values differences in children. They are its raison d'etre. The graded school ignores or attempts to obliterate differences since they are detrimental to the smooth operation of its program.

The Problem

Despite its appeal, the nongraded school can hardly be expected to replace the well-established graded school without a convincing demonstration of its superiority. When schools nongrade they do so with the implicit or explicit belief that children will achieve more and adjust better. Is this belief justifiable? Do children from nongraded schools truly exhibit marked improvements in achievement and adjustment?

The answer to this question is not as simple as it may appear at first blush. Education and learning are bewilderingly complex processes influenced by numerous variables. Not all of these variables have been isolated and perfect consensus on the relative influence of those identified is lacking.

One thing is certain; most variables operate within the confines of the broad educational system whose components influence its effectiveness. Nongradedness is not an external force superimposed on systems to work its benefits independently.

To become operative, nongrading must become an integral part of the warp and woof of the school's instructional fabric. For this reason the other strands of this fabric have also been included as variables in this evaluation and include the students, the staff, and the community.

Students

Students may not all benefit equally from nongradedness. They enter school with many differences. Indeed, student variabilities are fundamental to the nongraded school; without them it has no justification. But the very differences nongradedness hopes to minister to may also temper its effectiveness. Appraisals of nongradedness should focus on students' demographic characteristics since they could condition its effectiveness.

1. Sex differences, while patent, are by no means the only differences in children. Since schools educate all of the children of all the people. The socio-economic differences present in society are mirrored in the classroom and these, conceivably, could have a considerable impact on children's achievement and adjustment. Therefore, the child's socio-economic status has been included in this study as another demographic measure which could influence the effectiveness of the nongraded school.
2. Ability, or potential for academic attainment, is another of the many differences found in children starting school. By "raising the ceilings and lowering the floors," the nongraded school hopes to offer educational programs consonant with students' abilities. In so doing, one wonders if this procedure benefits the bright child as much or more than it does the less able.
3. Achievement itself may influence the outcomes of this investigation. Though educators see in nongradedness a means of enhancing student achievement, past achievement may determine the effectiveness of nongradedness. Possibly students

with a history of poor scholastic achievement benefit most from nongradedness while its influence on students who have consistently done well in school is negligible. Obviously, the converse is also possible.

4. Furthermore, children's achievements vary from subject to subject. Some children learn to read effortlessly and are successful almost from their first exposure to the printed word. Others labor over each syllable and success seems almost unattainable. Again, for other children the logic of arithmetic is almost transparent and they appear to solve problems intuitively. Then there are children for whom arithmetic is a hopeless and insoluble conundrum. Does nongradedness help alleviate these conditions? Is it more effective with one subject than another? This investigation addresses itself to these questions.
5. We know children commence school with different abilities and different accomplishments in learning. We also know these initial inequalities increase rather than narrow as they progress through school. Under these conditions, perhaps nongrading is more appropriate for specific class levels than others. Perhaps not. It could be equally beneficial at all levels. To resolve this doubt, class level has been included as part of a student's demography in assessing the influence of the nongraded school on achievement and adjustment.
6. Should class level be important it may be equally important to consider the type of progress a child makes from one level to the next. Assumedly, nongraded schools have developed procedures to provide for continuous pupil progress and these procedures should be assessed when considering the influence of the nongraded school on student adjustment and achievement.
7. The amount of time children have spent in a nongraded program could also influence the outcomes of this study. Children attending a nongraded school for only one year may exhibit characteristics markedly different from those with two or three

years in a nongraded program. Surely if nongradedness influences achievement and adjustment, the amount of the treatment received must be considered in appraising it. Furthermore, if nongraded programs differ from graded programs, children may require time to adjust to these program changes and ignoring this possibility could mask pertinent findings.

8. If changes are wrought in student adjustment by nongrading, one wonders about the *durability of these changes*. Possibly gains achieved in a nongraded primary are ephemeral and will be neutralized during the intermediate years of schooling. In other words, differences in the scholastic achievements and adjustments of children during the intermediate years may be imperceptible regardless of the nature of their primary education.

Staff

Staff contribute heavily to the success of any educational improvement efforts, and the staff of the nongraded school is a factor influencing its effectiveness. Some contend staff, more than innovation per se, is the single most important determiner of successful educational improvement efforts. In this study, staff has been subdivided into classroom teachers and principals and the influence of each of the effectiveness of the nongraded school is studied.

Teachers are essential to any educational program. Without them, schools, graded and nongraded, would cease to function. In essence, they activate the school's educational philosophy into a day-to-day instructional program. The effectiveness with which this is done can easily be conditioned by a teacher's demography.

1. Teaching requires preparation; skills and attitudes must be developed before "keeping school" becomes teaching. So preparation for teaching is a variable for

this study and has been refined to include the quantity and area of the preparation.

a) The most casual observer of education knows variations exist in the amount of preparation teachers have. Some have less than a bachelor's degree while others have undertaken graduate study beyond their master's. Obviously, there are shades and hues of differences between these extremes. How important are these differences when considering teacher influence in a nongraded primary program?

b) Additionally, qualitative differences in teacher preparation exist. Pre-service education prepares students to teach at various school levels. Some prepare to teach high school English while others prepare for service in nursery school. Indeed, some teachers did not prepare for teaching during college and only after graduation decided to enter the profession. The relevance of a teacher's preparation for her present assignment could influence the effectiveness of the nongraded program.

2. Teaching experience is certainly another such characteristic related to effective education. It could easily be considered as the total number of years of classroom service. While this may be efficient it is also gross and the very grossness of the measure may conceal important aspects of experience. So various refinements have been made for this variable also.

a) The level at which the experience was gained may discriminate in a teacher's effectiveness in a nongraded program. Two primary teachers could have the identical number of years in teaching. One, however, may have had the major portion of her experience in the intermediate grades or the high school while the other taught at the primary level exclusively. Do variations of this type influence their effectiveness in nongraded schools?

b) Will the number of years a teacher has taught in a nongraded primary influence her effectiveness in the program? Presumably the nongraded schools are substantially different from graded schools and require a new orientation to children, learning and teaching. Logically, the teaching appropriate to a graded school would be inappropriate to a nongraded school. Teachers in a nongraded school would have to develop new pedagogical patterns. But developing new patterns of teaching takes time, they are not acquired overnight. Therefore, the amount of experience a teacher has had in a nongraded primary may have relevance for the success of the program.

3. Schools evaluate teachers' preparation and experience when employing them and when developing staff teaching assignments. Indeed, the very educational program developed by a school could, to a large measure, depend on these characteristics. But all schools do not have identical educational programs nor do they all have identical assignments for teachers. In some schools, they teach both reading and arithmetic. In others they teach either reading or arithmetic, not both. These variations in teaching assignments may influence the efficacy of the nongraded school and have been included as variables for this study.

4. Children's differences and their implications for instruction have only recently been emphasized by educators. Possibly teachers nearing the end of their careers hold beliefs about learning and teaching quite different from their colleagues commencing a career. Conceivably, lifelong beliefs about education can be abandoned and replaced by new ones, but it is also possible that the beliefs and practices developed over decades of teaching careers have sturdy taproots which are not easily severed. Age, then, is another variable examined when considering the influence of teachers on the outcomes of a nongraded program.

5. If teachers are important in determining the success of educational programs then their classroom performance is critical to the efficacy of educational innovations.

If teachers do not organize and guide learning in nongraded classrooms differently from teachers in graded classes, it might be folly to anticipate differences in children's achievement and adjustment. Should identical practices be called "graded" in one setting and "nongraded," in another then words have clearly lost their meaning, and names, not programs, have been changed. In a nongraded primary one expects to find teachers who are not only cognizant of differences among children but who are tailoring instruction to meet these differences. So, the teacher's classroom performance has been included as a variable.

6. If differences in teaching performance are anticipated it is reasonable to expect them to be rational rather than capricious. The foundation for this rational change should flow from a knowledge of tenets of the nongraded school. Does a teacher's knowledge of these principles have implications for the effectiveness of such programs? Are teachers who are better schooled in the principles of the nongrading more likely to produce changes in student achievement and adjustment than those less knowledgeable?
7. But knowledge of the tenets of the nongraded school in and of itself is probably insufficient to generate changes in teaching performance. Knowing the teachings of the movement is one thing, endorsing them is another. It is doubtful whether simply knowing that nongradedness stresses individual differences is sufficient to cause teachers to modify their teaching to meet these differences. So, the teachers' acceptance of the beliefs of nongradedness is important for this study.

Essentially we believe that knowing, accepting, and putting the beliefs of nongradedness into practice in the daily operation of the classroom are important determiners of the effectiveness of the nongraded program.

Principals must be included in any comprehensive assessment of the nongraded school. The teacher's influence on nongradedness is considerable but circumscribed.

She may modify her teaching and alter her class organization to produce a nongraded instruction, but this influence stops at the threshold of her classroom. When teachers are able to change the instructional program of the entire school they have acquired important administrative function. Power to institute school-wide changes rests with the principal, the control center of the school.[2] Nongradedness, by its very nature, is not confined to a single class; it permeates the entire school. In this respect, then, the principal has great influence on the effectiveness of nongraded programs.

Study of the principal as a change agent suggests study of his demographic characteristics. In so doing two dimensions of the principal's background are examined: his preparation for teaching and his preparation for administration. In the former, consideration is given to the identical elements used with teachers. His age, level and duration of teaching experience, and extent and level of preparation are considered.

The data gathered on his preparation for the principalship parallels that gathered for teaching. Such information, coupled with teaching background data, may yield important clues when assessing the effectiveness of nongraded programs.

1. Formal preparation for the principalship is one measure of this background. Again, both the amount and the level of preparation are important. Possibly principals with minimal formal preparation for their positions may impede or enhance the effectiveness of nongraded programs. So formal preparation becomes an important piece in the mosaic for this study. While the amount of preparation could be important the level of preparation may be equally relevant. Principals prepared for service in the elementary school may view their leadership responsibilities

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[2] Henry M. Brickell, Organizing New York State for Educational Change: A Study of the Dynamics of Instructional Change in the Elementary and Secondary Schools of New York State with Recommendations for Improved Organization, (Albany, New York: The University of the State of New York, State Education Department, December, 1961), p. 23.

quite differently from their colleagues prepared for service in the secondary schools. But confining principal variables to formal education is a narrow view of preparation for leadership.

2. Experience may be as valuable or more valuable than formal education in bringing about successful educational change. The neophyte may lack the sophistication and statemanship needed to produce lasting educational change while the seasoned leader may have developed that sixth sense needed to make nongradedness a viable reality. So we look, too, at experience as a principal's characteristic which may influence the effectiveness of nongraded programs. Here a discrimination between experience at the elementary and secondary levels is made to ascertain their relative importance.
3. A principal's education and experience may indeed influence the effectiveness of a nongraded program in his building, but it could be more profoundly effected by his knowledge and acceptance of the tenets of the movement. Principals can hardly be expected to provide the inspired leadership necessary to produce an effective nongraded school if they are ignorant of its supporting beliefs. Moreover, knowledge of the tenets of nongrading, per se, may not be sufficient to have any influence on the effectiveness of a nongraded program. Endorsement of these teachings, however, may be crucial to the effectiveness of the program. Obviously, a person can hardly be expected to work assiduously to produce something in which he has no faith. So not only the principal's knowledge of the teachings of the nongraded school movement but also his acceptance of these teachings may be vitally related to the effectiveness of the nongraded school.
4. Finally we look at how principals administer their schools. Educational improvements are not spontaneous, they are caused. What do principals do to bring about these improvements? Are there differences in the leadership performance of principals? Will these differences influence the effectiveness of education in these schools?

The Educational Program

The educational program itself could contribute to the outcomes of this study for it involves the relations among people and the enterprise. Studies of innovations frequently terminate with descriptions of individuals and their activities, and rarely investigate the influence of interaction on outcomes. One reason for this is the inherent difficulty in this task. It is virtually impossible to identify, define, and measure the salient aspects of this relation with sufficient accuracy to warrant the undertaking. However, imbedded in this relation may be factors transcending personnel demography and task performance. Nongradedness encompasses many of these relations and its success may be more related to these illusive interactions than it is to the characteristics of people in the program.

1. For this reason, the length of time schools have operated nongraded programs was considered as a variable. Admittedly this is a global measure and leaves much to be desired. But we know schools develop character, esprit de corps, if you like, which could relate to the effectiveness of a nongraded program. As people work together they develop expectations and understandings which are never codified, rarely ennunciated, but nonetheless present. These may be the very factors which mark one program a success and another a failure. Possibly people working in a nongraded program for a long time have forged relations and molded understandings which may influence the effectiveness of this program. What we are saying is the longer schools have been nongraded the greater the opportunity to encounter and resolve difficulties inherent in process of nongrading. If this is the case then the number of years a nongraded program has been operative could have relevance for this study.
2. Since time may produce differences in schools, nongradedness may be expected to assume different characteristics from school to school. Obviously schools develop

different understandings of the salient features of a nongraded program as they go through the process of program development. Not only have different problems been met but different solutions derived. From this position it is expected that schools will develop unique organizational patterns to operationalize the solutions to educational problems and each school will have its own brand of nongradedness. Conceivably one form of nongradendess may be more effective than another and for this reason the patterns of nongradedness developed by the schools are considered independently.

Obviously, appraising the effectiveness of the nongraded school is a complex proposition. Merely contrasting the achievement and adjustment of students from graded and nongraded programs without regard for some of the factors cited above would be unspeakably naive and fall considerably short of the desired target of this study. If differences are produced in student adjustment and achievement they doubtlessly come from what people do to produce a gradeless school and how they perform once it has been achieved. Nongradedness does not exist in isolation, independent of elements found in the school. The nongraded school is essentially educators working with learners in a setting free from a host of a priori assumptions about children and the rate at which they should acquire predetermined information. Its meaning is derived from what is done in schooling children rather than what is said about educating them. It would be shortsighted, indeed, to overlook this and to fault or praise nongradedness as an independent factor influencing the achievement and adjustment of boys and girls.

Hypotheses of the Study

Now that the problem with all its subtle ramifications has been presented, certain questions about the nongraded school may be raised to guide and direct this inquiry. These questions are essentially the study's hypotheses. For convenience and ease of reading they are outlined under four headings: GENERAL HYPOTHESES; TEACHER VARIABLES; PRINCIPAL VARIABLES; and DURATION OF EFFECT.

1. GENERAL HYPOTHESES

   A. Do graded and nongraded schools differ in

      1. Organization

      2. Provision for continuous pupil progress

      3. Teachers'

         a) knowledge and acceptance of the principles of the nongraded school

         b) classroom performance

      4. Principals'

         a) knowledge and acceptance of the principles of the nongraded school

         b) administrative performance

   B. Do students from graded and nongraded schools differ in achievement and adjustment

   C. Are students' achievements and adjustments in graded and nongraded schools influenced by

      1. Demographic characteristics

      2. School placement (level or grade)

      3. Type of school organization

      4. Provision made for continuous pupil progress

      5. Length of time the school has had a nongraded program

      6. Community characteristics

      7. Teachers'

         a) knowledge and acceptance of the principles of the nongraded school

         b) classroom performance

         c) demographic characteristics

8. Principals'
    a) knowledge and acceptance of the principles of the nongraded school
    b) administrative performance
    c) demographic characteristics

D. Is the continuous progress made by students influenced by
    1. Students'
        a) achievement
        b) adjustment
        c) demographic characteristics
    2. Teachers'
        a) knowledge and acceptance of the principles of the nongraded school
        b) classroom performance
        c) demographic characteristics

E. Is there a relation between student achievement and adjustment

II. TEACHER VARIABLES

A. Is there a relation between a teacher's knowledge and acceptance of the principles of the nongraded school and her
    1. Classroom performance
    2. Demographic characteristics

B. Is there a relation between a teacher's classroom performance and her demographic characteristics

III. PRINCIPAL VARIABLES

Is there a relation between a principal's knowledge and acceptance of the principles of the nongraded school and his

1. Administrative performance
2. Demographic characteristics

3. Teachers'
    a) knowledge and acceptance of the principles of the nongraded school
    b) classroom performance

IV. DURATION OF EFFECT

Is the achievement and adjustment of students in the intermediate grades influenced by their

1. Demographic characteristics
2. Primary level achievement and adjustment
3. The type of school organization at the
    a) primary level
    b) intermediate level
4. Continuous progress
5. Teacher's
    a) knowledge and acceptance of the principles of the nongraded school
    b) classroom performance
    c) demographic characteristics
6. Principal's
    a) knowledge and acceptance of the principles of the nongraded school
    b) administrative performance
    c) demographic characteristics

Now that the questions the investigation seeks to answer have been enunciated, procedures for answering them must be established. Since we are looking at the relative effectiveness of contending school organizations there is no justification for presuming the superiority of either plan. Likewise, postulating the generalized influence of any of the variables isolated for study is untenable.

Obviously, in a study of this nature numerous comparisons are made and differences are bound to occur. But not all of these differences will be sufficiently large to accept them as irrefutable evidence of the superiority of one or the other organization. Some differences will be negligible and for all intents and purposes should be disregarded. The inevitable question at this point is, "How large must a difference be before it can be accepted as evidence of the superiority of one or the other types of plans?" In determining their relevance, all differences will be subjected to the scrutiny of statistical analysis and a determination made of the likelihood of having this difference occur simply by chance.

We have painstakingly avoided the use of research jargon as a courtesy to the reader unfamiliar with it. Essentially, what we have done is employ the null hypothesis for this investigation and establish levels of confidence derived from the application of the laws of probability to statistical data.

Definitions

Thus far the language employed has been non-technical and used as in common parlance. Its meaning is not obscure and no elaborate system of definitions has been needed. Fortunately this is true of most of the terms used in this investigation.

However, some terms which at first blush appear meaningful may need definition. They are commonly encountered in educational literature and daily conversation, and we assume that through usage a common understanding of their meaning has developed. This may be erroneous and to guard against ambiguity these terms have been selected for specific definition.

The Nongraded School

The first of these terms is the nongraded school. Certainly this is one of the most frequently encountered terms in contemporary educational literature. As a matter of fact, the literature on the nongraded school is rich in jargon which does little to sharpen understandings of what constitutes a nongraded school. The nongraded school, the ungraded school, the flexible primary unit, the continuous growth in reading plan, _flexigrade_, and the continuous progress plan are but a handful of terms scooped up from a bushel of terms used in describing these programs. To this listing could be added those in which the school's name is used to identify the program, such as the Essex Road School's Continuous Progress Plan and the like. This endless barrage of titles would be justified if indeed it portrayed essential features of the nongraded school. They do not. What is one system's "primary block" is another system's continuous progress plan and no discernible differences exist in either organization. Generally, most titles are nondescript and add little to one's understanding of what constitutes a nongraded school.

Doubtlessly, shadings of differences exist among these plans and this nurtures the confusion engulfing our understanding about the nongraded school. If differences were only nominal they could be ignored, but when substantive differences exist this latitude is not permissible. To lighten these shadings and have the structure of the nongraded school stand out in bold relief an operational definition of the nongraded school is employed in this study. We attempt to describe the nongraded school in terms of the organizational characteristics and operating procedures used to achieve a nongraded school.

At the outset the participating districts agreed to have their nongraded programs reflect seven attributes:

1. An adaptable curriculum--operationally defined
2. Inventory and diagnosis--teaching
3. Individualized instruction (e.g. subgrouping)
4. Nonforced and unobstructed learning
5. A reporting system consistent with the philosophy of the nongraded school
6. A nongraded program in both reading and arithmetic
7. Absence of grade labels and related machinery

Obviously, these are extremely gross and nondirectional themes. Almost any meaning can be read into them and consequently no common, unifying element of nongrading exists in all districts. Individual perceptions of the nongraded school will still be the strongest single determiner of the features these programs will exhibit, and nongradedness becomes a mosaic constructed from the discrete activities schools have adopted to provide for individual differences and insure continuous pupil progress.

This condition resulted from design rather than happenstance. We are principally concerned with describing and analyzing the changes schools make to become nongraded. Each district blueprinted and constructed its own nongraded school. Deliberately, no effort was made to erect a prefabricated nongraded school on the sites provided. There were good reasons for this. First, we wanted to study the districts' conceptualizations of the nongraded school and the procedures used to make these views operative. Next, we wanted diversity in patternings of the nongraded school so the relative effectiveness of each could be assessed. Furthermore, any effort to superimpose a preconceived plan for school organization and operation on districts was judged an unwarranted and unjustifiable infringement on their autonomy. Lastly, no one accepted procedure of demonstrated superiority for nongrading has been found in the literature.

The definition of the nongraded school, then, is a description of the operational changes made by schools to become nongraded. The principal changes in 1) sequential organization, 2) class organization, 3) criteria for grouping students, and 4) staff utilization were used for this purpose. Since these features are inexorably bound to appraisal, a fuller understanding of their relation to the study is gathered after reading Chapters II and III.

The Graded School

The graded school is similarly defined. It is unrealistic to grant variability to the nongraded schools and expect the graded school to stand as an immutable monolith. It, too, is susceptible to variations. Homogeneous grouping, teaching cycling, departmentalization and the like may or may not be employed in these schools. Therefore, the operational practices in these schools are cast against the criteria developed for describing the nongraded school.

Pupil Progress

The alarming percentage of primary grade students retained by the graded school spurred educators to devise alternative procedures for school organization. Nongraded schools accept differences in children's learning rates and modify their programs to accommodate for these differences. A few children complete the primary in two years, most in three, and some in four years. But it is the child's unique learning rate, not the program which determines the most appropriate rate of progress. So, there are at least two ways of categorizing the rate at which a child progresses through the nongraded primary: normal progress and continuous progress.

Normal progress is simply completing the primary unit without any skips or lags. Typically, this is accomplished in three years.

Continuous progress, on the other hand, is something else. It is the adjustments and accommodations made by the school in the student's learning assignment to provide him with the most appropriate learning experience. Schools may achieve this in one or two ways. First, they may alter the rate at which students progress through the primary. Some students will complete the primary in two years and for some an additional year in the primary is provided. So, continuous progress may be one of two types - accelerated or decelerated. These are substantially adjustments in the time provided for learning.

In this way, then, an examination of the provisions nongraded schools make for individual differences through a study of the rate at which students progress through the primary can be made.

Knowledge and Acceptance of the Principles of the Nongraded School

We have intimated that a staff's disposition towards an innovation could be highly relevant for the efficacy of that innovation. To generate this information, a special instrument, The Education Opinion Inventory, was developed. The data from the inventory yields a measure of knowledge and acceptance of the tenets of the nongraded school and permits study of this information on the outcomes of students performance.

Performance Measures

Perhaps providing one instructional practice calculated to provide for individual differences is worth a thousand words explaining why this action should be taken. For this reason we have looked at the way teachers and principals perform their jobs. If the things people do to provide for individual differences made a difference in the efficacy of a nongraded program we wanted to know what people in nongraded programs are doing.

Teachers' classroom performance data was gathered by trained observers who watched a teacher and recorded what they saw on the classroom observation Guide. This provided the measure used for teachers' classroom performance.

Principals' administrative performance was measured by means of a structured interview. The principal's responses to questions were recorded on tape and in writing and used as an index to his behavior.

Rationale and Organization of the Study

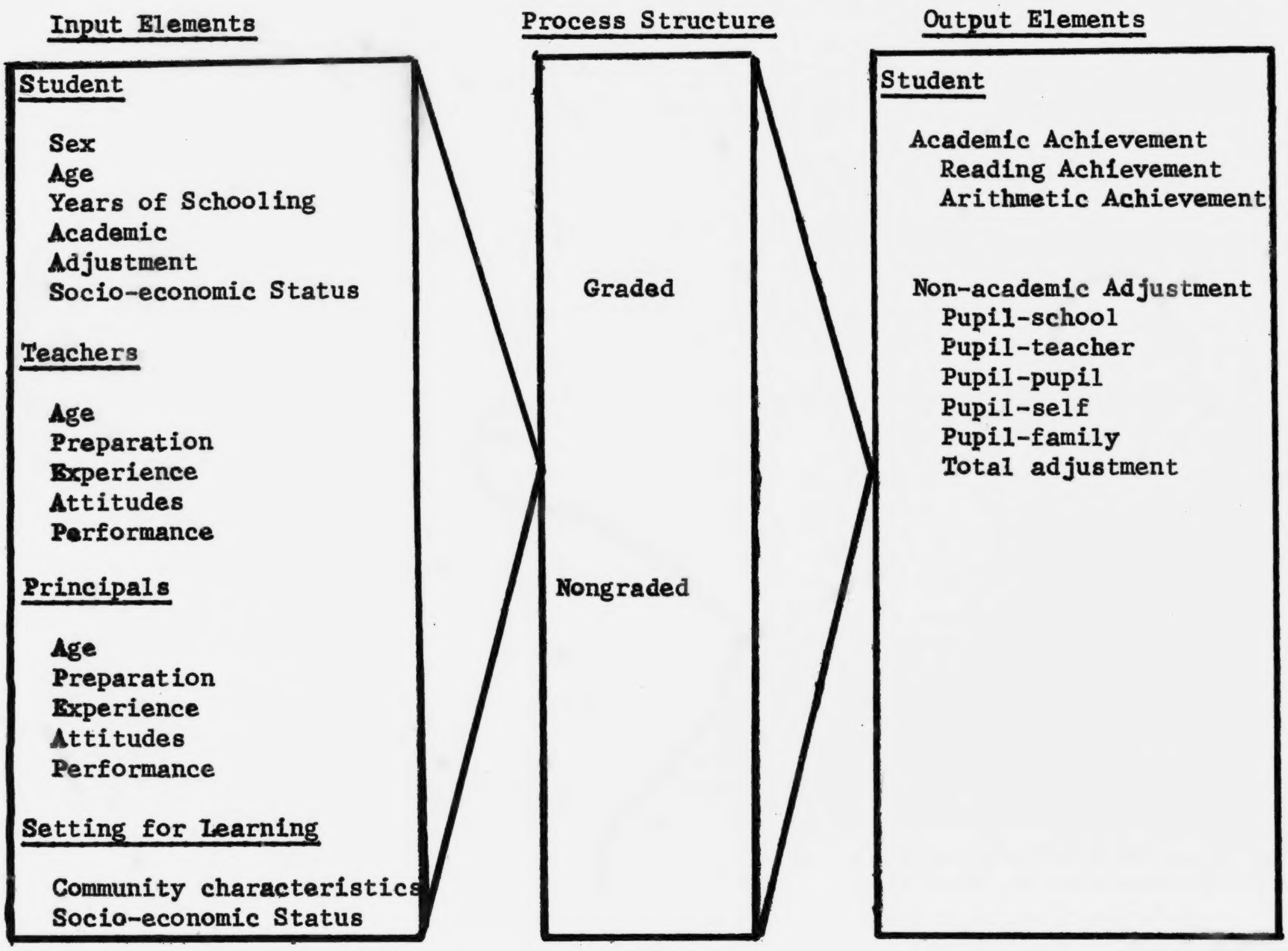
Education is purposeful. It seeks to produce selected learnings in children, its curriculum, and the objective and position of the school in the educational continuum largely determine curriculum content. Church-related schools, schools for a-typical children, technical institutions, and the like have curricula compatible with their unique objectives. Curricula in college and high school differ as studies in high school and elementary school differ. In short, there are educational priorities and curriculum variations related to the school's objectives and position in the educational hierarchy.

While curriculum stratification occurs, a common corps of learnings is also held for all. Command of a common language and number system, appreciation of our cultural and political heritage, and respect for established laws and institutions are a few such common learnings. Obviously the educational effort expended in realizing these learnings is a function of the objectives and position of the institution. In the early years of schooling high priorities are placed on mastery of the common language and number system and the curricula stress reading and arithmetic.

Though there is considerable agreement on what schools should stress in the initial years of schooling, there is less agreement on how to achieve this educational outcome. This disagreement is important. The principal difference between graded and nongraded schools does not stem from disputes over what children should learn, the curriculum content, but the process to utilize in achieving these purposes. Both want children to develop reading and arithmetic mastery. Unless this is true, there is little justification for contrasting the relative effectiveness of graded and nongraded schools for there is no common base on which comparisons may be made. Under these conditions, the efficacy of the nongraded school must be accepted as an article of faith, not an empirically established fact. Patently, introducing a nongraded sequence into a program is not tantamount to accepting new learning goals. Schools, graded and nongraded, still want children to learn to read and write. As a matter of fact most nongraded schools continue to employ the identical instructional materials utilized in their previous graded programs. The difference comes in the way these materials are utilized and this is the essence of nongrading. Furthermore, the reason for accepting an alternate procedure for achieving the same learning objectives stems from a belief that a nongraded program is a more efficient procedure for realizing the same learning outcomes.

If this is not true, if indeed the nongraded school represents a basic change in the educational offering rather than in the procedures, then there is little reason to place credence in the claim of universality of the nongraded school for all levels of education for all curriculum areas. To be universal, the nongraded school must have characteristics which transcend the curriculum objectives of any particular level in the educational continuum and any special educational objective. Instructional procedure would have this quality and permit nongrading to be applied to any levl of instruction in any type school.

From the rationale a model for the study emerges. Process, being a discernible discriminator between graded and nongraded schools, suggests that a systems approach be employed in the evaluation. In this framework, grading and nongrading are alternative processes for achieving common goals or outputs. Now, processes are performed on something, the inputs of the system. Generally the inputs to be processed have commonality but not identity. And herein lies the rub. The less identity among input elements the more difficult the task of evaluating the effectiveness of process in producing outputs. In other words, process, in this case grading or nongrading, cannot be evaluated in the absolute. The efficacy of a process is a contingency. It depends upon the qualities of the inputs processed. With one set of inputs, nongrading may be the preferential process. As these elements change, nongrading may become less efficacious in producing the desired outcomes and grading may be the preferred process. A representational model for conceptualization is presented below.


Input Elements
Student
Sex
Age
Years of Schooling
Academic
Adjustment
Socio-economic Status
Teachers
Age
Preparation
Experience
Attitudes
Performance
Principals
Age
Preparation
Experience
Attitudes
Performance
Setting for Learning
Community characteristics
Socio-economic Status
Process Structure
Graded
Nongraded
Output Elements
Student
Academic Achievement
Reading Achievement
Arithmetic Achievement
Non-academic Adjustment
Pupil-school
Pupil-teacher
Pupil-pupil
Pupil-self
Pupil-family
Total adjustment

Justification

Essentially this investigation asks, "What are nongraded schools and are they worthwhile?" This is not a transitory concern but one of genuine moment. Graded schools are pressured to become nongraded and nongraded schools are constantly asked to marshall all available evidence to justify their existence. Educators can easily become dazzled by the corona emanating from the literature extolling the merits of the nongraded school, institute such a program and anticipate far more from it than it can possibly deliver. Under such conditions a realistic appraisal of the outcomes of nongrading seems warranted If this study can produce a sense of proprietory about the nongraded school and encourage sober and modulated statements about its merits, then it will have been worthwhile. If, for example, children from nongraded classes do not achieve more or adjust better than children from graded classes, educators should know this and be chary in the claims they make for the nongraded school.

Presently existing research on the nongraded school is minimal, spora~~t~~dic, and partial. Opposing conclusions on the influence of the nongraded school on students abound in the literature. If this ambiguity can be lessened or eliminated a considerable contribution may have been made to the nongraded movement and the improvement of education in general.

One reason for the paucity of a definitive body of information regarding the benefits of the nongraded school stems from lack of a clear understanding of what constitutes such a school. Presently we have many statements describing the goals of a nongraded school but very few concrete guidelines to determine when nongrading has been realized. We talk about developing programs that will provide for individual differences in a learning environment structured for maximum flexibility and adaptability but then we depend on intuition as our guide for realizing these ends The hallmarks of a truly nongraded school are pretty much anyone's guess and hunches rather than empiricism have been employed in determining when schools are nongraded. Hopefully, this study will produce some operational definitions of the nongraded school and assess the relative effectiveness of programs falling within these guidelines. If this can be achieved perhaps a dim and flickering light will be trained on a shadowy area in the nongraded school movement.

This investigation does not terminate here. It seeks to identify a constellation of features and practices associated with successful nongraded programs. If the presence of certain staff or community characteristics can be associated with effective nongraded programs they should be noted. If this is accomplished, educators may have a star to guide them when developing nongraded schools. If alterable staff or community characteristics are, indeed, forerunners of viable nongraded programs and can be isolated, schools may be in a much better position to make those changes necessary to nongrading before introducing the sequence into their schools. If, for example, we find that a staff's understanding of the tenets of the nongraded school is strongly predictive of successful nongraded programs, administrators can work to develop these understandings with their teachers before inaugurating a nongraded program in their schools.

Finally, before this study could be conducted instruments for appraising the nongraded school had to be developed. Ultimately these instruments could be equally beneficial in developing and perfecting nongraded programs. If the criteria employed in these instruments are accepted as normative they could provide educators with bench marks for assessing the progress they have made in individualizing instruction. They may, for example, take a long hard look at what they are actually doing about student differences and not just what they say should be done. In the final analysis it is what is done for students more than what we say should be done for them that will be the true determiner of the efficacy of the nongraded school.

Limitations

Most investigations are circumscribed. Some restrictions are self-imposed; others emanate from the nature of the phenomenon studied. This study is not free from such limitations.

First, it is limited to an appraisal of the nongraded school at the primary level. Frankly, this happens because nongrading has become associated with primary education and more programs may be found here than at any other school level. So availability of programs for study dictated this limitation. Clearly this restriction was never intended by the founders of the nongraded school movement. Usage has tended to make this common practice. At this point it must be made clear that accepting this limitation does not constitute endorsement of the practice. Nothing could be further from the truth. If the nongraded school is beneficial there is little justification for assuming its benefits are confined to a particular artificially selected school level. However, when interpreting the findings of this study this limitation must be kept clearly in mind. Since it is primarily an evaluation of the nongraded school at the primary level, its findings need not be true for other levels in the school program.

The second limitation flows from restrictions in the curriculum areas included in the study. The influence of nongrading on students' academic performance in reading and arithmetic only have been appraised. This restriction, by the way, is not whimsical. The major thrust of most schools' primary programs is in these areas. But this limitation, justifiable as it is, precludes generalizing the findings of this study to other curriculum areas. Conceivably, nongrading may be equally beneficial or more beneficial in other curriculum areas. This investigation sheds little light on this possibility and the value of nongraded programs for these areas must remain in the realm of conjecture and speculation.

The types of communities included are also limited. Ideally, the full spectrum of community types should have been included. If this were possible, the impact of community characteristics on the efficacy of the nongraded school could be appraised. In this respect, however, the study falls on the near side of perfection. The schools cooperating in this study are all located in communities near the center of the socio-economic scale and it is impossible to ascertain the effect of nongrading in schools from communities at the extremes of this continuum. All that can be said is that the more closely communities approximate those included in this appraisal the more pertinent the findings of this study for their schools.

The above restriction results from the limitations in sampling procedures. This is our fourth limitation. Essentially the schools participating in this study constitute a self-selecting sample, they volunteered their participation. Those conversant with educational research realize that most of it depends heavily on the generosity and willingness of schools to endure the inconvenience of research. But the ensuing consequences of this procedure cannot be underestimated. Basically, since the sample was not randomly selected it is possible that it is not representative. The details of the sample selection procedure and the efforts made to establish representativeness are presented in Chapter II.

Then there are limitations associated with the nongraded school itself. Clearly, schools could adopt an unlimited number of procedures and practices to achieve nongraded programs. Obviously, not all of these are found in this study. Hopefully it contains a cross-section of the most commonly found nongraded programs and thus provides a semblance of universality for the findings. However, for schools operating nongraded schools totally different from any represented in this study, these findings may not be applicable.

This study was conducted in a natural learning environment, the local school, and it possibly falls short of the textbook description for a research model. Ideally, the experimental and control classes would have remained undistrubed and intact. No children would have transferred in or out of these classes, school attendance lines would remain constant, and there would be no teacher turnover. In theory this is desirable, in practice it is unattainable.

Students did transfer during the study, school attendance areas were changed, and teachers did change positions. In short, the research model was subject to all the contemporaneous forces associated with the operation of a nongraded school. In laboratory research this would not have happened. Controls would have been employed.

But nongraded schools do not operate under laboratory conditions and the study appraised the nongraded school as it functioned in the day-to-day education of boys and girls. Where possible, adjustments have been made to mitigate against the influence of these uncontrollable changes. But still the complete impact of some of these events on the outcomes obtained can never be fully known. The reader should keep this, our final limitation, in mind when interpreting the findings of this evaluation of the nongraded school.

Within these bounds, the findings of this investigation should have pertinence for persons interested in the nongraded school.

CHAPTER II

SUBJECTS, MATERIALS AND PROCEDURES

The New York State Education Department has had an abiding interest in continuous pupil progress plans. As early as 1935 it advocated abandoning the graded school[1] and a decade later described the merits for nongraded school plans.[2] Understandably, as interest in the nongraded school increased, the Department's activities in this area accelerated, too. On March 10, 1961, Dr. John I. Goodlad, one of its leading exponents, conducted a seminar on the nongraded school for the Department. This evaluation of the nongraded school is an outgrowth of that meeting. Following the seminar, a polling of the State's public schools was undertaken to ascertain the extent and interest in nongrading within the State. Sixty-one districts reported they either had or were contemplating a nongraded sequence for their schools.[3] From this roster, schools judged by the Department to be the most actively involved in nongrading were invited to send representatives to a workshop in Albany on August 15-16, 1963. Thirteen districts accepted the invitation.[4] After discussing the feasibility of conducting multi-district evaluation of the nongraded school, districts willing to participate in this venture were asked to submit to the State Education Department by September 20, 1963 plans of the procedures they would use to achieve nongrading in their schools. A second, two-day workshop convened in Albany on October 10, 1963 with Dr. Robert H. Anderson as consultant. This time sixteen school districts were represented[5] and the ensuing school year (1963-64) was devoted to aiding them refine their nongraded programs in preparation for the forthcoming evaluation.

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[1] Report of the Regents Commission on Mentally Gifted and Retarded Children (Albany: The University of the State of New York, 1935).

[2] Bureau of Instructional Supervision, Division of Elementary Education, Pupil Progress in the Elementary Schools of New York State (Bulletin No. 1297; Albany: The University of the State of New York, July 16, 1945), pp. 10, 13, 20.

[3] Louis T. DiLorenzo and Ruth Salter, "Co-operative Research on the Nongraded Primary," The Elementary School Journal, Vol. LXV (February, 1965), p. 274.

[4] Bethlehem, East Irondequoit, East Williston, Elmira Heights, Liverpool, Maryvale, Mineola, Niagara Falls, Plainedge, Port Washington, Union-Endicott, Valley (Montgomery), and Vestal.

Despite these procedures the desired stability in the participating districts was not achieved. After the project was launched in spring 1964 additional changes in the roster of participating school districts occurred. Half of the districts withdrew and three new districts were added to the list.[6] This pattern of attrition continued and at the end of the first year of the study two more districts withdrew from the investigation.[7]

The above is typical of the difficulties encountered in multi-district studies. It underscores those events which may limit the validity of the study since the results of any investigation are only as valid as its methodology and as representative as its sample. Every inquiry, no matter how carefully conceived and painstakingly conducted, can produce only tentative knowledge. In a very real sense, the major purpose of presenting an exhaustive review of the research on the nongraded school was to furnish some benchmarks against which the findings of this study could be measured.[8]

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[5] Bethlehem, Cato-Meridian, East Irondequoit, East Williston, Elmira Heights, Glen Cove, Hastings-on-Hudson, Liverpool, Maryvale, Mineola, Niagara Falls, Plainedge, Port Washington, Union-Endicott, Vestal, and Yorktown Heights.

[6] The following districts withdrew from the investigation in spring 1964: Bethlehem, Cato-Meridian, East Williston, Elmira Heights, Glen Cove, Liverpool, Mineola and Union-Endicott. The following districts were added to the project in spring 1964: Afton, Bainbridge-Guilford, and Marion.

[7] Port Washington and Vestal did not continue in the project after the 1964-65 school year.

[8] William P. McLoughlin, The Nongraded School: A Critical Assesment. Albany, New York: New York State Education Department, 1967.

Should our findings differ dramatically from those of other investigators a substantial question of their validity may be appropriate and a replication study indicated. For this reason, then, a description, as detailed as feasible, of the way this investigation was conducted follows.

This detail has another, though perhaps less-apparent, purpose. Research is legitimately expected to answer questions and produce knowledge. This is universally accepted. But it has another equally legitimate, though perhaps less-widely acknowledged outcome, the development and refinement of the methods of inquiry. This purpose can hardly be served without a fulsome presentation of the methodology utilized. Only when this is done can the study's virtues and shortcomings be assessed.

Subjects

Students

Clearly, population erosion was encountered. While this may be a hallmark of action research, multi-district studies appear to be acutely susceptible to it. Common as the occurrence is, its implications for the findings of the investigation cannot be ignored. Conceivably, a biased sample is being studied and one must ask forthrightly: How representative are the participants? Essentially the data and conclusions in this report are based on a self-selected rather than a random sample. That is, the participating schools were included because of unknown, predisposing considerations which prompted them to become nongraded initially and to volunteer for this study secondly. Should these *unknowns* associate with the variables studied, the participants may be non-representative. Under these conditions, the possibilities for a biased sample loom. While the conditions producing this situation are understandable and common, they do little to mitigate against the implications of a biased sample for research findings.

To estimate the representativeness of the study population, comparisons between the measurable characteristics of the study groups and those of other reference groups were made. The less the disparity between these two groups, the more applicable the findings of this investigation to a wider audience. The data used to estimate the comparability of the reference groups comes from two sources; the New York State Pupil Evaluation Program and the norming data for the California Test of Mental Maturity.

In compliance with the provisions of the Elementary and Secondary Education Act of 1965, the New York State Education Department inaugurated an extremely comprehensive and successful State-wide evaluation program. Reading and arithmetic achievement tests were administered to over 1.2 million first, third, sixth, and ninth grade students in 5,100 public and nonpublic schools throughout the State. Approximately 93% of all students enrolled in these grades were tested.[9] When one considers that students with serious mental, physical, and emotional handicaps were exempted from testing, the return is little short of spectacular.

Since the State's Pupil Evaluation Program assessed the reading and arithmetic achievement of first and third grade students and comparable measures are utilized in this evaluation, comparisons on these variables are meaningful and appropriate. Three tests were used to gauge the reading and arithmetic attainments of children: the New York State Readiness Test for grade one, the Arithmetic Tests for New York State Elementary Schools and the Reading Tests for New York State Elementary Schools at the third grade.

The New York State Readiness Tests

The New York State Readiness Tests are, for all intent and purposes, the same as Form A of the Metropolitan Readiness Test. The chief difference occurs in the omission of the "Draw-A-Man Test," an optional feature of the Metropolitan Readiness Tests, and the inclusion of a "Readiness Inventory." The latter permits teachers to record readiness features they believe are not appraised by the test.[10] With these exceptions, then, the New York State Readiness Tests and the Metropolitan Readiness Tests are identical.

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[9] The University of the State of New York, the New York State Pupil Evaluation Program: Report of Test Results, School Administrator's Copy (Albany: The State Education Department, April, 1966), p. 5. (Mimeographed.)

Three measures of validity, content, congruent, and predictive validity, are reported for the tests. Content validity is predicated on the significant, positive, and low range (.36 to .64) of intercorrelation coefficients for the tests' subtests. Correlation coefficients between the Metropolitan Readiness Tests and the Pintner-Cunningham Primary Mental Ability Tests, and the Murphy-Durrell Reading Readiness Analysis (Revised) yield estimates of the tests' congruent validity. Coefficients between the Metropolitan and the Pintner (.76) suggest substantial agreement, but again, not identity. While all coefficients between the Metropolitan and the Murphy-Durrell tests are positive, some are quite low (.23 to .85). However, in all probability they are not sufficiently depressed to challenge the tests' validity. Indications of the Metropolitan's predictive validity are gained through correlations with the Stanford Achievement Test: Primary, Form J. Here, all coefficients are positive and moderately high (.52 to .75).[11]

Three separate split-half correlation coefficients were calculated for the tests to estimate reliability. Again, while the correlations for the total tests are high, all exceeded .90, the coefficients for the subtests, though positive, tended to be lower (.33 to .89). The publisher states that if undue significance is not attached to the subtest scores, the total scores can be utilized with considerable confidence in appraising a child's readiness.[12]

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[10] Manual of Directions, New York State Readiness Tests, Form A (New York: Harcourt, Brace & World, Inc., 1965), p. 2.

[11] Ibid., pp. 11-13.

The comparisons between the performances of children in the study group and other children taking the New York State Readiness Tests are represented in Table 2.1. The State Education Department, in reporting these data, uses several categories: (1) individual school building scores; (2) individual school system scores; (3) State-wide scores; (4) county scores for public school students, non-public school students, and the combined public and non-public school students; and, finally, C-type, or community-type scores. In the latter case, factors such as community size, school enrollment, type of school organization, and the like are employed to develop seven community-types which enables one to contrast the scores of any school or school system with those of like communities (see page 79).[13]

Not all of these categories have relevance for the present purposes and the analyses of the scores on this test for students in the schools participating in the study have been limited to (1) system, (2) C-type, and (3) State-wide comparisons.

Clearly, the performance of students in the study group compares favorably with that of other students in these school systems. In 9 of the 12 comparisons made the differences between the groups were small and not statistically significant. In two of the remaining three cases, however, the performance of students in the study population was superior, statistically, to that of their contemporaries in these systems. In the remaining case, obviously, the performance of the children in the system as a whole on the New York State Readiness Tests was significantly better than that of the children in the study group from that system. So the performance of the study group on the New York State Readiness Tests is gratifyingly comparable to that of their

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[12] Ibid.

[13] The University of the State of New York, op. cit., pp. 3-4.

TABLE 2.1

COMPARISON OF THE STUDY GROUP AND REFERENCE GROUP
SCORES ON THE NEW YORK STATE READINESS TESTS[a]

Study Group				Reference Groups								
				School System					C-type		State	
Code #	N	M	SD	N	M	SD	F	t	F	t	F	t
						C-type #5[b]						
031	73	75	12.1	401	74	11.5	1.11	.68	1.50*	2.89**	2.82**	3.90**
032	70	72	12.3				1.14	-1.33	1.45*	1.13	2.59**	4.66**
041	147	76	12.8			Same			1.34**	4.92**	2.39**	12.64**
061	275	68	12.3	592	68	12.1	1.03	.0	1.45**	-2.25*	2.59**	5.89**
081	100	69	15.1	560	69	13.6	1.23	.0	1.04	-.68	2.18**	3.88**
082	120	68	13.4				1.03	-.73	1.22	-1.48	1.72**	4.04**
110	426	73	12.3			Same			1.45**	4.23**	2.59**	12.64**
121	132	70	12.6	344	71	12.6	1.00	-.78	1.38**	.0	2.47**	5.25**
122	103	76	11.2				1.27	3.62**	1.75**	4.12**	3.13**	7.69**
123	109	69	13.0				1.06	-1.43	1.30*	-.71	2.32**	4.24**

TABLE 2.1 (continued)

Study Group				Reference Groups								
				School System					C-type		State	
Code #	N	M	SD	N	M	SD	F	t	F	t	F	t
C-type #2[b]												
071	37	66	13.7	1557	62	15.6	1.30	1.55	* 1.82	1.32	** 2.09	1.54
072	81	62	13.4				* 1.36	.0	** 1.91	.0	** 2.18	.46
073	75	68	13.2				* 1.40	** 3.28	** 1.96	2.81	** 2.25	* 2.47
074	69	53	14.7				1.13	** -4.70	** 1.58	** -4.04	** 1.81	** -3.37
C-type #7[b]												
011	74	71	10.3	Same					** 2.21	* 2.25	** 3.70	** 4.35
051	80	68	13.6	Same					1.27	.57	** 2.12	** 3.16
C-type #6[b]												
020	121	68	11.8	Same					** 1.55	.0	** 2.82	** 3.90

** Significant at the .01 level of confidence
* Significant at the .05 level of confidence

[a] Data is from the New York State Pupil Evaluation Program.

[b] C-type #2: N=29,833; M=62; SD=18.5
#5: N=111,998; M=70; SD=14.8
#6: N=30,480; M=68; SD=14.7
#7: N=14,237; M=67; SD=15.3

[c] State: N=253,702; M=61; SD=19.8

counterparts in the systems from which they were selected and the results of this evaluation can probably be applied to all students in these systems with a large measure of confidence.

But here, comparability tends to end. When the performance of students in the study groups is contrasted with those of students in their respective C-type categories better than 40% of the comparisons, 7 of the 17, yield differences which are statistically significant. Furthermore, most of these cases, five of the seven, find the children in the study population attaining scores which are significantly higher than those of their counterparts in other C-type schools. In the remaining cases, patently, the scores of the study group were significantly lower than those of other children in comparable schools. Clearly, this finding means that considerable caution should be exerted before applying the outcomes of this evaluation too widely and too freely.

The discrepancies already noted broaden when comparisons are made between the study groups' scores and those of children throughout the State. Here, in every case save one, the performance of the students in the study population exceeded that of other children in the State on the New York State Readiness Tests. Furthermore, these differences were large enough in all but two cases to be statistically significant. Essentially, then, there is a very strong possibility that the study group performance on this test is not a facsimile of that of students in the State, and, again, caution should be the watchword in applying the findings of this evaluation to other populations.

Reading Tests for New York State Elementary Schools

The reading tests used in the Pupil Evaluation Program were developed specifically for the New York State Education Department and normed in 1959. They assess the student's reading attainments in two areas: Word Recognition and Reading Comprehension. Since the tests are structured around the Department's recommended reading program, curriculum validity is claimed for the tests. Additionally, estimates of concurrent validity are provided. Correlations between the Reading Tests for New York State Elementary Schools and the Stanford Reading Tests, the Metropolitan Reading Tests, and the SRA Reading Tests were used for this purpose. The resulting coefficients for the total are gratifyingly high - the Stanford .83, the Metropolitan .86, and the SRA .88. Similar results are reported for subtest scores and the correlations are all positive and range between .76 and .82. Additional measures of the tests' concurrent and predictive validity are planned but are presently unavailable.[14]

Reliability measures, too, were developed in 1959 and the test's part score and total score correlation coefficients are indeed impressive. None of the total test coefficients dip below .90 and the standard error courses between 3.1 and 3.5. Similarly, the part score coefficients are substantial and range between .84 and .87 with the standard error ranging between 2.0 and 2.5.[15]

While the norming credentials presented appear acceptable, the tentativeness of these data must be understood. Forthrightly, the Department cautions against accepting these data as definitive and immutable and suggests the tests should be presently viewed as experimental.[16]

On the Reading Tests for New York State Elementary Schools the performance of the study groups tended to be quite similar to that of other children in the systems from which these groups came (Table 2.2). In 4 of the 10 cases where differences occurred the study groups scored higher than their counterparts in these systems. In

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[14] Reading Tests for New York Elementary Schools: Manual of Directions (1961 Revision; Albany, New York: The University of the State of New York, 1962),p. 39.

[15] Ibid., p.37

[16] Ibid.

TABLE 2.2

COMPARISON OF THE STUDY GROUP AND REFERENCE GROUP SCORES ON READING TESTS FOR NEW YORK STATE ELEMENTARY SCHOOLS

Study Group				Reference Groups								
				School System					C-type		State	
Code #	N	M	SD	N	M	SD	F	t	F	t	F	t
				C-type #5[b]								
031	66	38	8.3	394	36	10.2	1.51*	1.51	1.72**	1.49	2.45**	3.76**
032	106	34	11.7				1.32*	-1.74	1.15	-1.89	1.23	1.59
041	148	38	11.2		Same				1.06	2.24*	1.35**	5.64**
061	142	36	9.8	538	34	10.7	1.19	2.01*	1.24*	.0	1.76**	3.68**
062	148	34	10.7				1.00	.0	1.04	-2.24*	1.48**	3.68**
081	109	38	11.0	548	35	11.1	1.02	2.59**	1.02	1.94	1.40*	4.84**
082	109	34	11.7				1.11	-.85	1.15	-1.92	1.23	1.61
110	445	40	9.9		Same				1.21**	7.83**	1.72	13.13**
121	113	31	12.4	375	32	13.1	1.12	-.72	1.29*	-4.89**	1.10	-.82
122	137	36	11.9				1.21	3.14**	1.19	.0	1.19	3.60**
123	125	29	14.1				1.16	-2.18**	1.67	-7.18**	1.18	-2.58**

TABLE 2.2 (continued)

Study Group				Reference Groups								
				School System					C-type		State	
Code #	N	M	SD	N	M	SD	F	t	F	t	F	t
				C-type #2[b]								
071	43	30	11.1	1479	32	11.4	1.05	-1.13	1.11	-1.12	1.37	-1.01
072	66	31	11.0				1.07	-.698	1.13	-.695	1.40*	-.63
073	69	32	12.2				1.15	.0	1.09	.0	1.14	.0
074	75	32	10.4				1.20	.0	1.27	.0	1.56**	.0
				C-type #7[b]								
011	77	34	10.3		Same				1.22	.0	1.72**	1.39*
051	82	30	11.6		Same				1.04	-3.18**	1.26	-1.40
				C-type #6[b]								
020	123	32	11.1		Same				.98	-2.98**	1.37**	.0

** Significant at the .01 level of confidence
* Significant at the .05 level of confidence

[a] Data is from the New York State Education Department's Pupil Evaluation Program.

[b] C-type #2: N=27,606; M=32; SD=11.7
#5: N=108,451; M=36; SD=10.9
#6: N=28,142; M=35; SD=11.2
#7: N=13,596; M=34; SD=11.4

[c] State: N=241,443; M=32; SD=13.0

the other six cases where differences occurred the scores of children in the system were higher than those of children in the study group. In the remaining eight instances no differences in scores were noted. Five of these eight cases had no differences because all of the children in the system were in the study group and, so, study group scores and system scores were one and the same.

But in the 10 cases producing differences, only four of these were statistically significant. In three of the cases the differences favored the children in the study group. So, while perfect identity between the performances of the children in the study group and the population from which they were selected was not achieved in all instances, the study group appears to be sufficiently similar to the other children in the systems to allow generalization of the findings of this evaluation to these systems as a whole.

The discrepancies noted between the performances of children in the study groups and children in C-type schools and the State in general are somewhat less pronounced than those produced on the readiness tests but nonetheless sizeable. Where significant differences between the study groups' scores and those of children in C-type schools occurred they tended to be evenly divided. Twice the differences favored children from the study groups and four times the children from C-type schools. In all other cases the differences occurring were small enough to be statistically insignificant. However, study group comparisons with State-wide scores produce different results. Here, 8 of the 18 comparisons undertaken yield significant differences, seven of which favored the study group. Therefore, sufficient discrepancies exist between the performances of children in the study groups and the State to warrant circumscribing the population to which the results of this evaluation may be applied.

Arithmetic Tests for New York State Elementary Schools

The norms for the arithmetic tests used in the Pupil Evaluation Program, like those for the reading tests, are tentative. More extensive norming studies are contemplated, but until they are conducted, these available must be considered, at best, approximations and experimental.[17]

The test's only claim to validity appears to be content validity since it, like the reading tests, is developed around the State's arithmetic program.[18] Estimates of the reliability of the test are provided through a test-retest correlation. A high, positive correlation coefficient, .93, and a low standard error, 3.1, are produced by this procedure. The subtests' coefficients, too, are high and positive, .80 to .88, and their standard errors also low, 1.4 to 2.0[19]

When performance on the Arithmetic Tests for New York State Elementary Schools is used as an index of comparability, the study group is somewhat untypical of other children in the school systems from which they were selected (Table 2.3). In all but 5 of the 18 cases involved, comparisons of scores were possible. In these five cases all children in the school systems participated in the study and comparisons are meaningless. Thirteen cases remain. In one of these, the study group's scores and the system's scores were identical. In the other 12 cases, the differences in scores were equally divided between the study groups and the systems. However, all of the differences were not statistically insignificant. Two of the six differences favoring children in the study group were statistically significant while five differences favoring students in the system were statistically significant.

This pattern of difference continues when comparisons are extended to scores of students in C-type schools. Only three times were identical mean scores recorded.

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[17] Arithmetic Tests for New York State Elementary Schools: Manual of Directions (1961 Edition; Albany: The University of the State of New York, The State Education Department, 1964), p. 35.

[18] Ibid., p. 5.

[19] Ibid., pp. 36-37.

TABLE 2.3

COMPARISON OF THE STUDY GROUP AND REFERENCE GROUP SCORES ON THE ARITHMETIC TESTS FOR NEW YORK STATE ELEMENTARY SCHOOLS

Study Group				Reference Groups								
				School System					C-type		State	
Code #	N	M	SD	N	M	SD	F	t	F	t	F	t
C-type #5[b]												
031	65	39	8.4	400	37	9.8	1.36	1.56	1.33	1.67	2.18**	4.56**
032	107	33	11.4				1.35*	-3.62**	1.38**	-4.28**	2.18**	.84
041	153	39	9.1		Same				1.14	2.56*	1.86**	7.00**
061	142	37	8.9	538	35	9.5	1.14	2.26*	1.19	.0	1.94**	4.82**
062	148	35	10.1				1.13	.0	1.08	-2.52*	1.51**	2.96**
081	108	38	8.9	548	36	9.9	1.24	1.95	1.19	1.07	1.18	5.05**
082	113	33	10.7				1.17	-2.90**	1.22	-4.40**	1.34*	.86
110	447	42	8.2		Same				1.4**	11.00**	2.29**	17.21**
121	114	35	11.1	378	34	11.6	1.1	.81	1.31*	-2.21*	1.25	2.59**
122	140	39	10.6				1.2	4.47**	1.19	2.45*	1.37**	6.70**
123	124	29	10.8				1.15	-4.23**	1.24*	-9.22**	1.32*	-2.71**

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TABLE 2.3 (continued)

Study Group				Reference Groups								
				School System					C-type		State	
Code #	N	M	SD	N	M	SD	F	t	F	t	F	t
						C-type #2[b]						
071	42	32	8.9	1484	34	9.9	1.24	-1.30	1.64**	.0	1.94**	.0
072	66	31	9.5				1.09	-2.41*	1.44*	-.71	1.7**	-.65
073	68	35	10.9				1.21	.81	1.09	2.17*	1.29	2.00*
074	75	31	8.8				1.27	-2.57**	1.68**	-.76	1.99**	-.699
						C-type #7[b]						
011	78	36	8.6		Same				1.38*	.876	2.08**	2.84**
051	84	33	10.2		Same				1.02	-1.82	1.48*	.74
						C-type #6[b]						
020	122	36	9.4		Same				1.11	.0	1.74**	3.56**

**Significant at the .01 level of confidence
*Significant at the .05 level of confidence

[a] Data is from the New York State Education Department's Pupil Evaluation Program.

[b] C-type #2: N=27,998; M=32; SD=11.4
#5: N=107,986; M=37; SD=9.7
#6: N=28,002; M=36; SD=9.9
#7: N=13,428; M=35; SD=10.1

[c] State: N=241,526; M=32; SD=12.4

In 7 of the remaining 15 comparisons the children in the study group outscored their counterparts in C-type schools and four of these seven differences were statistically significant. In the eight cases where the scores of children in C-type schools were higher than those of students in the study group, five of these differences were statistically significant.

The pattern of differences already noted not only continues when extended to State scores on the Arithmetic Tests for New York State Elementary Schools, but is accentuated. In all but four cases the children in the study group outscored their contemporaries in the State and in 11 of these 14 instances the differences are statistically significant. In only one instance, however, were the scores of children in the study group significantly lower than those of children throughout the State.

Obviously, the children in the study group are not mirror images of children in their home school system, comparable school systems, or the State. Extreme caution should be exercised in extending the findings of this study to populations other than those included in it because there is a genuine possibility that the study group is non-representative.

While these differences among students and the accompanying limitations they impose on extrapolating the findings of this investigation to other populations are somewhat disappointing, they raise a series of interesting questions about nongrading which this study cannot attempt to answer. Specifically, one wonders about the expansiveness of differences existing among school districts that have introduced nongraded instructional programs into their schools and those school districts that have not. The evidence here is sufficient to demonstrate that the attainments of students in reading and arithmetic in these districts are significantly greated than those of their counterparts in other school districts throughout the State. Are these the only differences? Or are these differences merely symptomatic and surface manifestations of deeper and more pervasive differences among districts electing to nongrade their instructional programs and those choosing to remain graded?

Summary

Understandably, numerous comparisons were performed in assessing the comparability of the study group's showing on the tests used in the New York State Pupil Evaluation program with that of other reference groups and it may be difficult to keep clearly in mind the myrid outcomes of these analyses. Should confusion and uncertainty exist, it may be difficult, if not impossible, to resolve the basic consideration which prompted these investigations: Are the children in the study group representative of other children in New York State when performance on the tests used in the New York State Pupil Evaluation program are used as criteria?

To remove this possible confusion and provide a basis for answering this question, Table 2.4 was developed. This is essentially a table of the distribution of differences found in the mean scores of the study group and other reference groups taking identical tests. Hopefully, this presentation summarizes the findings reported earlier and enhances the process of formulating conclusions regarding the representativeness of the study group.

One overriding conclusion emanates from these data; the performance of children in the study group has a marked similarity to that of their contemporaries in the systems from which they were chosen. Instances of differences in performances between the groups on the readiness, reading and arithmetic tests employed in the New York State evaluation can be found, but they are few and far between. By far the similarities outnumber the differences and the most common finding forthcoming from these analyses is that there is no statistically significant difference in the performances of children in the study group and their classmates in the school system. For all intent and purposes, then, the study group may be considered representative of children in these school systems.

TABLE 2.4

THE DISTRIBUTION OF SIGNIFICANT AND NON-SIGNIFICANT DIFFERENCES BETWEEN THE STUDY GROUP AND REFERENCE GROUPS ON THE NEW YORK STATE PUPIL EVALUATION PROGRAM

Comparison of Study Group with	READINESS						READING						ARITHMETIC					
		Sig. Diffs.						Sig. Diffs.						Sig. Diffs.				
		Group favored						Group favored						Group favored				
	NSD	Study Group	System	C-type	State	N	NSD	Study Group	System	C-type	State	N	NSD	Study Group	System	C-type	State	N
System	9	3	0	-	-	12	9	3	1	-	-	13	6	2	5	-	-	13
C-type	10	5	-	2	-	17	11	2	-	5	-	18	9	4	-	5	-	18
State	2	14**	-	-	1	17	9	8	-	-	1	18	6	11	-	-	1	18
Total	21	22	0	2	1	46	29	13	1	5	1	49	21	17	5	5	1	49

**Significant at the .01 level of confidence

Like conclusions seem supportable for the C-type schools, too. Here, once again the most dominating finding is that no statistically significant difference exists in the attainment in school readiness, reading and arithmetic among students from the study group and their counterparts in schools in like communities. Instances can be pin-pointed where either the children from the study group or the C-type schools excelled, but these pale in the light of their commonalities and again the claim for comparability appears warranted.

However, here comparability seems to end with an abrupt reversal of the pattern noted above. The number of times no significant difference in performance between children in the study group and children throughout the State can be reported is diminished considerably and there is an accompanying increase in the instances where the performance of children from the study group excelled that of children throughout the State on the measures employed in the New York State Pupil Evaluation Program. The available evidence strongly suggests that the study group and children throughout the State form two discrete populations.

Because of these glaring dissimilarities, a chi-square analysis was performed on these dispersions to determine if they could reasonably be considered chance fluctuations. Such a proposition seems totally untenable because such variability from expectations could be accounted for by chance and chance alone only fewer than five times in a hundred.

While there is good evidence to suspect that the children participating in the study are adequate representatives of children from their own school system and schools in similar communities there is no reason to believe that they are comparable to children throughout the State; the discrepancies in performance are too large to withstand such a conclusion. Fortified with these data, the reader is cautioned not to extrapolate the findings of this study to other groups too freely.

Age-Grade Distribution

Analysis of age-grade distributions was undertaken for additional comparability studies. These distributions, by number and percent of students in each class for each of the first three years of school, are found in Table 2.5. A surface examination of them suggests certain conclusions. However, tests for the significance of differences were performed on the data and the findings are reported in Table 2.6.

Clearly, statistically significant differences are present. With first year students alone, 46.6 percent of the differences tested proved statistically significant. Like results were obtained from the analyses performed on the second and third year data. In the second year 57.7 percent of the differences tested in the age-grade distributions of students in the participating districts were statistically significant. For the third year it was 60.0 percent. Doubtlessly, considerable variability exists among the age-grade distributions of the districts participating in this study.

In the first year it is clear that two districts, 04 and 12 were almost the sole contributors to these observed differences. They enroll proportionally greater numbers of six year olds in their first year classes than other districts in the study or, for that matter, than the typical school district in New York State. Nearly all of the significant differences identified involved these districts. Slightly less than perfect adherence to this pattern is noticed with the second year age-grade distribution data. Now district 08 joins districts 04 and 12 in accounting for most of the differences observed. Again, the tendency is for these districts to have larger proportions of seven year old students in their second year classes than other districts in the study or the State. Notunexpectedly,

TABLE 2.5

COMPARATIVE AGE-GRADE DISTRIBUTIONS IN PARTICIPATING SCHOOLS AND THROUGHOUT NEW YORK STATE*

District	First Year of School Age in Years			Second Year of School Age in Years			Third Year of School Age in Years		
	5	6	7	6	7	8	7	8	9
02	23.81% (30)	74.60% (94)	1.59% (2)	29.69% (38)	67.19% (86)	3.12% (4)	24.62% (33)	68.66% (92)	6.72% (9)
03	22.59 (89)	73.35 (289)	4.06 (16)	21.14 (85)	69.65 (280)	9.21 (37)	18.25 (75)	68.61 (282)	13.14 (54)
04	2.53 (4)	90.51 (143)	6.96 (11)	3.49 (6)	92.44 (159)	4.07 (7)	7.79 (12)	77.93 (120)	14.28 (22)
05	22.36 (19)	71.76 (61)	5.88 (5)	22.22 (18)	76.54 (62)	1.24 (1)	22.35 (19)	70.59 (60)	7.06 (6)
06	27.57 (150)	70.04 (381)	2.39 (13)	28.35 (142)	64.47 (323)	7.18 (36)	20.72 (86)	73.49 (305)	5.78 (24)
07	27.17 (428)	70.92 (1160)	1.91 (87)	21.12 (340)	69.38 (1102)	9.50 (146)	20.28 (309)	69.93 (1065)	9.79 (143)
08	27.28 (186)	71.11 (485)	1.61 (11)	26.86 (195)	73.14 (531)	---- (none)	27.42 (170)	72.58 (450)	---- (none)
11	21.56 (94)	75.69 (330)	2.75 (12)	22.06 (92)	70.50 (294)	7.44 (31)	18.43 (73)	75.51 (299)	6.06 (24)
12	.27 (1)	90.84 (327)	8.89 (32)	.87 (3)	84.93 (293)	14.20 (49)	.28 (1)	84.46 (299)	15.26 (54)
N.Y. State	23.60 (42,007)	70.57 (125,666)	5.92 (10,391)	22.50 (36,994)	69.23 (113,836)	8.27 (13,609)	21.17 (33,713)	68.92 (109,740)	9.91 (15,766)

* Exclusive of New York City

TABLE 2.6

SIGNIFICANCE OF DIFFERENCES IN AGE-GRADE DISTRIBUTION

District	Yr.	02	03	04	05	06	07	08	11	12	N.Y. State
02	1		1.77	**33.06	2.92	1.13	3.71	.66	.77	**90.98	4.19
	2		7.78	**40.25	2.39	2.82	8.76	**23.54	5.37	**103.34	7.12
	3		5.68	**17.65	.15	1.19	2.10	**42.20	2.63	**91.20	2.13
03	1			**33.11	.55	4.64	2.71	8.99	1.30	**92.38	2.72
	2			**36.01	5.93	6.62	.01	**70.66	.87	**74.46	.75
	3			9.43	2.82	**13.17	5.21	**90.76	**11.79	**68.68	6.00
04	1				**25.35	**49.36	**42.48	**55.18	**33.96	6.27	**38.93
	2				**23.37	**51.90	**41.55	**70.22	**35.01	**16.14	**44.67
	3				**11.79	**21.24	**16.03	**109.26	**17.18	**24.27	**17.81
05	1					3.91	.47	.73	2.30	**78.17	.07
	2					6.37	6.13	**9.67	4.40	**70.62	5.48
	3					.36	.64	**44.52	.90	**78.27	.78
06	1						7.85	.99	4.71	**126.98	**14.72
	2						**11.05	**55.61	4.77	**111.73	**9.93
	3						5.52	**40.39	.68	**90.37	8.39
07	1							**15.74	8.66	**115.59	4.28
	2							**84.91	1.28	**83.92	2.43
	3							**68.55	5.90	**87.16	1.16
08	1								5.91	**137.66	**24.75
	2								**56.65	**192.78	**67.79
	3								**46.01	**193.23	**73.95
11	1									**93.75	**9.47
	2									**81.35	.49
	3									**79.49	**9.77
12	1										**107.29
	2										**98.57
	3										**95.54
N.Y. State	1										
	2										
	3										

** Significant at the .01 level

this pattern is replicated with the age-grade data for students in their third year of school. A disproportionally larger number of eight year olds are enrolled in the classes of districts 04, 08 and 12 than in the classes of the other districts in the study or the State generally.

Overall, the differences in the age-grade distributions among the participants outweigh their similarities. But these discrepancies are not diffuse but concentrated. Truly, the vast majority of them are associated with three school districts. Excepting these three districts, considerable comparability exists among the remaining districts and they mirror quite closely the age-grade distribution of children in the first three years of school in the State generally. Nonetheless, if age is associated with any of the dependent variables of the study, its findings must be interpreted with this clearly in mind and considerable care should be exercised to present overgeneralizing from the findings.

Intelligence

Intelligence test scores, too, were used to provide estimates of the comparability of the study group with a known reference group. Here, the study group's scores on the initial administration of the California Test of Mental Maturity (fall, 1964) were contrasted with those of the norming group. Unfortunately, national norms only are reported and regional comparisons cannot be made.[20] The results of these comparisons are reported in Table 2.7.

Comparisons were restricted to I.Q. scores even though data on mental age is

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[20] In response to an inquity, the California Test Bureau states: "The Short-Form Test of Mental Maturity is an intelligence test which yields intelligence quotients and as such is universally interpreted and understood to be based on national populations. We have never considered developing regional, state, city or school 'intelligence quotients'." Letter from Donald K. Ottoman, Director of Statistical Services, California Test Bureau, Monterey, California, November 29, 1965.

TABLE 2,7

COMPARISON OF THE RESULTS OBTAINED BY THE STUDY GROUP AND THE NORMING POPULATION ON THE CALIFORNIA SHORT-FORM TEST OF MENTAL MATURITY, 1963 REVISION, LEVEL ONE[a]

Short-Form	Norming Population[b] N=200		Study Group											
			Experimental N=1475				Control N=330				Mixed N=647			
Category	Mean (M)	Standard Deviation (SD)	M	SD	F	t	M	SD	F	t	M	SD	F	t
I.Q.														
Total	111.6	10.7	105.1	12.4	1.3429**	7.110***	108.6	11.1	1.0761	3.057**	104.0	12.6	1.3866**	7.731***
Language	109.2	10.6	104.2	12.3	1.3464**	5.514***	107.7	11.9	1.2603*	1.465	103.7	12.2	1.3246**	5.754***
Non-Language	110.9	10.5	105.2	12.8	1.4860**	6.067***	107.9	11.2	1.1377	3.060**	103.4	13.5	1.6530**	7.229***
M.A.														
Total	106.2	9.1	88.5	12.2			91.3	11.5			90.0	12.8		
Language	104.2	9.3	87.7	11.9			90.6	12.0			89.6	12.3		
Non-Language	105.8	9.5	88.8	12.6			90.7	11.6			89.7	13.3		

***Significant at the .001 level of confidence

**Significant at the .01 level of confidence

*Significant at the .05 level of confidence

[a] The study group includes approximately 150 students who took Level IH.

[b] Source for the norming data: California Test Bureau, Technical Report on the California Test of Mental Maturity Series, 1963 Revision (Monterey, Calif.: California Test Bureau, 1965), pp. 24-25.

also recorded in Table 2.7. Comparisons on mental age were not undertaken because these data are not obtained independently, but are derived from the I.Q. scores. With this dependency and inter-relation, tests for significance of differences between mental age scores would seem to do little more than confirm the findings ascertained through an analysis of the differences in I.Q. measures and in a sense be redundant.

Visually, one can see from Table 2.7 that the reported mean I.Q. scores from the norming population, in all cases, are considerably in excess of those calculated for the study group. Furthermore, similar, and even more dramatic differences are also obtained with the mental age scores. In all cases, too, there is more variability in the study group's performance on this test than was true for the norming population. In every instance, the standard deviation for the study group exceeds that of the norming population. This is particularly curious when the size of the populations are considered. In all cases, the "N" for the study group is larger, and in most cases markedly larger, than that of the norming population. Under these conditions one would expect the standard deviation of the study group to approximate more closely that of the norming population.

When one looks at the I.Q. scores and standard deviations within the divisions of the study group he is impressed with the similarities in performance. While variations can be noted, they tend to be modest and even small. This, of course, is not true when the comparisons are extended to the norming population. All of these differences are quite large and all but one are statistically significant.

These discrepancies are difficult to accept and even more difficult to justify. Barring an adequate explanation for this condition, caution should be a guiding principle in applying the findings of this evaluation to other populations who may be dissimilar to this study group.

Staff

Because the influence of selected staff characteristics on the efficacy of the nongraded school is considered in this study, comparisons between the study group and other reference groups on these characteristics were undertaken. Naturally, some characteristics are particular to this investigation and similar data are not reported elsewhere. The number of years a teacher has taught in a nongraded primary, for example, is considered in this study but not reported by other agencies. However, where possible, comparisons were made between the staff characteristics considered in this study and those reported by other agencies.

The data used in these comparisons come from two agencies, the National Education Association and the Bureau of Statistical Services of the New York State Department of Education. Obviously, they collect and report data in a manner compatible with their purposes and unerring comparability among these data is not always present. Most agencies utilize broad categories for collecting data such as "elementary school teachers" and "secondary school teachers". The data reported for the study population is based exclusively on primary level teachers (1-3) and compared with similar data for elementary school teachers (K-6). Possibly this discrepancy is negligible but again, this is speculation, not certitude. Furthermore, the statistic used for reporting data differs. Sometimes percentages are reported, at other times group means are presented, and occasionally medians are used. Where sufficient data were reported, conversions to a common statistic were undertaken before comparisons were made. However, this was not always possible and so the statistics compared are not always uniform. Clearly, these variations tend to blunt the keenness of the comparisons and make it a risky undertaking. However, within these limitations, efforts to ascertain the representativeness of the study population were attempted.

Teachers

Teachers participating in this study reported their age, teaching experience, and educational background on the Education Opinion Inventory and these data form the basis for the comparisons which follow. A cursory examination of Table 2.8 indicates some marked differences in the study population when compared with other reference groups.

Generally, few differences are found in the level of education of the teachers in the study group and those in the school districts from which they come, or, for that matter, teachers nationally. This similarity does not hold, however, when like comparisons are made for teachers throughout New York State. Typically, the teachers in the study group have significantly less formal preparation than other teachers in the State. Usually, the study group teachers have bachelor's degrees (64%) while their counterparts in the State have completed work beyond this level. Better than one out of two (55.3%) of the teachers in New York have completed college work beyond the bachelor's degree.

Furthermore, the teachers in the study group are relatively inexperienced, too. Half of them are in their first five years of teaching while nearly two-thirds of the teachers in the districts they represent and in the nation have six or more years of teaching experience. Again, all differences in experience, except the category "16 years and over," are statistically significant.

Some of the reasons, but by no means all, for these differences may be gleaned from an examination of their ages. The study group teachers are young. Nearly twice as many of the teachers in the study group are in the "under 25" category than would be found in the nation as a whole. As a matter of fact, in all age categories save the decade 35-44, a lower percentage of teachers is reported for the study group than teachers nationally. With these age differentials it is not surprising that differences

TABLE 2.8

COMPARISON OF CHARACTERISTICS OF TEACHERS IN THE STUDY POPULATION WITH OTHER REFERENCE GROUPS

Educational Background

Degree Status	Study Group	Reference Groups		
		Participating Districts[a]	State	Nation[b]
	%	%	%	%
No degree	9.6	6.1	8.2	12.9
Bachelor's and over	70.1	68.5	55.8***	71.4
Bachelor's	64.0	60.3	44.7***	. . . .
Bachelor's +30	6.1	8.2	11.1*	. . . .
Master's and over	20.3	25.2	34.9***	15.7[c]
Master's	16.2	20.9	25.0**	. . . .
Master's +30	4.1	4.3	9.9**	. . . .
Doctorate	.0	.2	.9	. . .
Unknown	. . .	. . .	.1	. . .
Total N=	100.0 (197)	100.0 (810)	99.9 (90,898)	100.0 (1,230)

Teaching Experience

Number of Years Teaching Experience	Study Group	Reference Groups		
		Participating Districts[a]	State	Nation[b,d,e]
	%	%	%	%
0 - 5 years	50.2	36.6***	. . .	37.1***
6 - 15 years	25.4	40.9***	. . .	33.6*
16 years and over	24.4	22.5	. . .	29.2
Total N=	100.0 (197)	100.0 (810)	. . . . . .	99.9 (1,230)
Mean	9.9 yrs.	. . .	. . .	11.8 yrs.
Median	6.0	. . .	. . .	8.0

TABLE 2.8 (continued)

Age

Age	Study Group %	National Sample[b]	
		All Teachers	Elementary Teachers
Under 25	27.6	16.2***	....
25-29	13.1	17.7	....
30-34	7.0	11.8*	....
35-39	16.1	11.0*	....
40-44	10.1	8.2	....
45-49	5.5	9.3	....
50-54	7.5	9.0	....
55-59	9.1	10.2	....
60or over	4.0	6.6	....
Total	100.0	100.0	....
N=	(199)	(2,301)	....
Mean	36.4 years	38.7 years	41.1
Median	35.6	36.0	....

***Significant at the .001 level of confidence
**Significant at the .01 level of confidence
*Significant at the .05 level of confidence

[a] Source: The New York State Education Department, "Professional Personnel Data, Selected Districts, Fall, 1964."

[b] Source: National Education Association, Research Division, *The American Public-School Teacher, 1965-66: Preliminary Report* (Washington, D.C.: The Association, 1966).

[c] Includes two categories: Master's degree - 14.9%; Professional diploma based on six years of college study - 0.8%.

[d] Slight differences in the classification of number of years experience were adjusted by assuming that the individuals in each category were evenly distributed within that category, and recombining the percentages in accord with the categories employed here.

[e] Data is reported only on "all teachers", with both elementary and secondary included.

in education and experience accompany them. One could hardly expect the teachers in the study group to have amassed many years of experience or academic credits beyond the bachelor's degree when they are just launching their careers in education.

Indeed, these findings are disconcerting. Ideally, from a research viewpoint, the assignment of teachers to nongraded classes would have been random and representative. They would, in fact, be a facsimile of the general population of teachers and mirrored their age, experience, and education. This is not the case. Possibly the exigencies of the situation rather than the rubrics of sampling theory dictated teacher selection. The cold, hard facts of the matter are that these newly-formed nongraded classes had to be staffed if the program was to be launched at all. One might expect the practitioner to nurture these infant programs by assigning the best-educated, most-experienced teachers to these classes. But this did not happen. The neophyte, not the veteran teacher, staffs these classes. Perhaps this is testimony to the belief that beginning teachers are less tradition-bound than experienced teachers and are more accepting of the tenets of nongrading. Too, it could mean that beginning teachers saw this as an opportunity to put into practice the educational philosophies they developed during their undergraduate training and volunteered for these assignments. The precise reasons for this situation will probably never be known, but one thing is certain; the nongraded classes in this study are being manned by young, inexperienced teachers with a minimum of formal teaching preparation. With these facts squarely in front of us, considerable caution should be exercised before applying the findings of this study to other situations.

Principals

Principals participating in this study reported data similar to that collected from teachers in addition to information pertinent to their preparation and experience in administration. Again, the amount of this information which could be utilized in the ensuing comparisons is greatly circumscribed by the lack of similar data from other agencies. Furthermore, the comparisons undertaken are subject to the restrictions cited earlier and must be interpreted with these limitations clearly in mind. Actually, comparisons were confined to degree status and professional experience with other principals in New York State. Within this limit a refined look at the principals is possible since the State data is reported by type of school district organization. These comparisons are presented in Table 2.9.

Obviously, few substantial differences can be found in the level of education or amount of experience between the principals in the study population and principals in the districts from which these schools were selected or throughout the State. Where differences occur in either of these variables they tend to be negligible and not statistically significant. The vast majority of principals in the study population (94.4%), like their colleagues in their school districts (90.4%) and throughout the State (90.4%), hold a master's degree or better. Typically, the principals in the study group have 20 years of service in education. About half of this time was spent in administrative and supervisory positions in the district in which they are presently employed. Except for some superficial variations, particularly with principals in city school systems, this general pattern of career development is remarkably similar to that of other principals in these school districts and throughout the State.

All-in-all, then, the principals in the study group can be considered an adequate representation of principals in general when one looks at their preparation and experience.

The Community

Efforts to appraise the efficacy of most educational practices are complicated by a myriad of unknown and undefinable variables. Traditionally, community has been considered one such variable. This is justifiable, too, for schools generally mirror

TABLE 2.9

THE DEGREE STATUS AND PROFESSIONAL EXPERIENCE OF SCHOOL PRINCIPALS[a]

Degree Status

Degree Status	Study Group %	Reference Groups				
		Cooperating Districts %	City %	Village %	Supervisory Districts %	State %
No degree	.0	.3	.6	.3	.2	.3
Bachelor's	.0	1.8	2.6	1.4	1.3	1.8
Bachelor's +30	5.6	7.5	8.3	6.2	8.3	7.5
Master's	55.5	52.7	54.3	46.6	58.5	52.7
Master's +30	33.3	34.2	31.0	40.2	30.2	34.2
Doctorate	5.6	3.5	3.2	5.3	1.5	3.5
Total N=	100.0 (18)	100.0 (47)	100.0 (490)	100.0 (612)	100.0 (506)	100.0 (1608)

TABLE 2.9 (continued)

Professional Experience

Total Years Experience in:	Study Group	Reference Groups				
		Cooperating Districts	City	Village	Supervisory Districts	State
	Mean (N)	Mean (N)	Mean (N)	Mean (N)	Mean (N)	Mean (N)
Education	20 (18)	22 (47)	25 (488)	17 (608)	15 (502)	18 (1598)
Administration & Supervision	12 (18)	12 (47)	9 (485)	9 (589)	8 (494)	9 (1568)
Present Position	10 (18)	8 (47)	7 (489)	7 (610)	5 (506)	6 (1605)

**Significant at the .01 level of confidence
*Significant at the .05 level of confidence

[a] Source for reference group data: The Bureau of Statistical Services, School Administrative Officers: Selected Data, 1964-65 (Albany, N.Y.; The University of the State of New York, March, 1965).

their communities' educational aspirations. Innovative schools typically enjoy the reputation of having community support and benediction for their programs. Schools with more prescriptive programs tend to be associated with communities with constricted educational horizons which cling to the "tried and true" and reject innovations as "newfangled and progressive."

But simply citing community as a potential contributor to the efficacy of nongrading does little, for the variable still remains diffuse and ill-defined. So, several measurable characteristics were used to describe community variability and furnish an index of the communities' socio-economic features. Traditionally, the occupational, educational, and income levels of the community's adult inhabitants have been used for these purposes. Additionally, data on the size and location of both the communities and the school districts involved in this evaluation were employed in developing the needed information on community as a variable. These data were readily available from the 1960 Federal Census[21] and the New York State Education Department.[22]

Census data. -- The attendance area for each elementary school in the study was obtained from the building principal and from this, the appropriate census tracts for these areas located. Now the relevant data on occupation, education, and income for the adult inhabitants in these areas could be read from the census reports. But these were simply raw data. To be usable, they had to be converted into a concise statistic. Here a modification of the familiar Warner Index was employed.[23]

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[21] U.S. Bureau of the Census, U.S. Census of Population and Housing: 1960 Census Tracts (Washington, D.C.: U.S. Government Printing Office, 1962), PHC (1)-16,21,104 Pt. II, 127.

[22] New York Education Department, New York State Pupil Evaluation Program (Albany, New York: The University of the State of New York, n.d.), p. 3 (Mimeographed.)

[23] The modifications used in the Warner Index were suggested by Richard P. Coleman, Vice-President, Social Research, Inc., Chicago, Ill., in a letter to the author dated November 9, 1964.

The principal occupational status of the majority of the adult male population (blue-collar worker or white-collar worker), the mean family income, and the mean number of years of school completed by persons 25 years of age or over were calculated for each census tract.

Of course, perfect congruity between the schools' attendance areas and census tracts rarely occurred. Several instances did occur where census tracts paralleled attendance areas. But when more than one tract or a portion of a tract were included in an attendance area, estimates of the proportion of inhabitants in these regions were calculated and weighted values for the occupational status, mean family income, and mean number of years of school of the inhabitants generated. Following this consolidation, the modified Warner Index could be used with these data and the school's relative position on the resulting socio-economic scale plotted. The results of these procedures are presented in Table 2.10.

Clearly, the schools participating in this study cluster about the center of this distribution and school communities from the extremes of the socio-economic continuum are conspicuously absent. Initially, this appears desirable and the temptation to consider the participants a representative cross section of the communities served by American public schools is considerable. However, mid-position in this instance need not represent this at all. In interpreting these data it should be understood that "pure community types" are not being represented. Most of these schools service families with very different income and education levels, but there is not sufficient representation from the groups at the extremes on the socio-economic continuum to have the school classified at either end of the distribution. Indeed, their representation is such that they tend to neutralize each others' influence and thus cast the school into a mid-position on the socio-economic continuum.

To demonstrate the presence of community socio-economic variability within school attendance areas, the income and education data reported for each census tract

TABLE 2.10

STANDING OF PARTICIPATING SCHOOLS ON OCCUPATION, EDUCATION AND INCOME VARIABLES: MODIFIED WARNER INDEX RANKINGS APPLIED TO CENSUS TRACT DATA

Education Rating[c]	Majority Occupation[a]													
	White Collar							Blue Collar						
	Income Rating[b]													
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1														
2														
3														
4			041	121 122 123										
5			081 112	031 082							032 061 071 072 073 111	011 021 023 051 074		
6														
7														

[a] Ratio of total "Professional, technical and kindred," "Managers, officials and proprietors," "Clerical," and "Sales" to the total number of employed males with reported occupations.

[b] Mean "Family Income" of the school attendance district classified as follows: 1) over $25,000; 2) $13,600-$24,999; 3) $9,180-$13,599; 4) $6,800-$9,179; 5) $5,030-$6,799; 6) $4,420-$5,029; 7) Below $4,420.

[c] Mean "Number of years of school completed by persons 25 and over" classified as follows: 1) Use Income here; 2) 13.5 and Up; 3) 12.7-13.4; 4) 11.5-12.6; 5) 9.5-11.4; 6) 8.5-9.4; 7) Below 8.5.

within the attendance area were studied by analysis of variance for significant differences in these measures. Obviously, this could only be done for a school with more than one census tract in its attendance area. Even so, comparisons were possible for 12 school attendance areas. Only two schools could be found where a semblance of socio-economic homogeneity existed and no statistically significant differences were found in the mean income or education of the inhabitants residing in the census tracts serviced by the school. However, in the 10 remaining school attendance areas, variability on these measures was common. In all ten of these instances statistically significant differences in the levels of education of the inhabitants of the census tracts served by the school were found. Similar, though not as dramatic, differences were also found in income for these areas. Here, 6 of these 10 communities had statistically significant differences in the income levels of the residents in the census tracts served by the school (Table 2.11).

The point to be made is that community socio-economic homogeneity is indeed rare and schools service children of vastly different socio-economic backgrounds. But, when the school is viewed as an entity these differences are not as conspicuous because the influence of the extremes have the tendency to cancel one another out and the school, as a unit, has the tendency to be located midway in the socio-economic distribution.

Now, these variations in socio-economic levels have more than passing interest for us. They shall be used later when assessing the influence of community variability on the efficacy of the nongraded school. While the utilization of these data in analysis may be forestalled, another, more immediate consideration should be taken up; the comparability among communities in schools with graded and nongraded programs.

These contrasts have been undertaken and are presented in Table 2.12. However, before discussing these data one point should be made. Some of the participating schools are completely nongraded. These are designated as experimental schools. Controls for these classes are located in other schools within the district or, sometimes,

TABLE 2.11

SUMMARY OF ANALYSES OF VARIANCE OF THE EDUCATION AND INCOME DATA FOR SCHOOL ATTENDANCE AREAS WHICH INCLUDE MORE THAN ONE CENSUS TRACT

District		Income				Education			
	Source of Variation	Sum of Squares	df	Mean Square	F	Sum of Squares	df	Mean Square	F
011	Between	41.591	1	41.591	.6606	15.761	1	15.761	1.6994
	Within	50801.856	807	62.951		16053.557	1731	9.274	
	Total	50801.856	808			16069.319	1732		
031	Between	.402	1	.402	.0045	29.076	1	29.076	2.7686
	Within	274037.201	3133	87.468		72441.031	6898	10.502	
	Total	274037.603	3134			72471.008	6899		
032	Between	6934.117	2	3467.058	** 45.6735	1219.195	2	609.598	** 60.7235
	Within	303866.332	4003	75.910		86344.868	8601	10.039	
	Total	310800.449	4005			87564.063	8603		
041	Between	24734.954	1	24734.954	** 99.7064	2905.018	1	2905.018	** 197.3839
	Within	580253.842	2339	248.078		83463.777	5671	14.718	
	Total	604988.796	2340			86368.795	5672		
060	Between	7817.247	3	2605.749	** 48.5612	1575.404	3	525.135	** 76.2357
	Within	415589.176	7745	53.659		108739.125	15786	6.888	
	Total	423406.423	7748			110314.529	15789		
072	Between	449.435	1	449.435	** 8.5157	245.070	1	245.070	** 24.2718
	Within	82174.235	1557	52.777		35026.228	3469	10.097	
	Total	82623.670	1558			35271.298	3470		

081	Between	2335.201	1	2335.201	26.7157**	563.625	1	563.625	64.4135**
	Within	223505.344	2557	87.409		48239.409	5513	8.750	
	Total	225840.545	2558			48803.035	5514		
082	Between	781.771	2	390.886	5.7779**	88.550	2	44.275	5.1091**
	Within	287652.357	4252	67.651		77931.838	8993	8.666	
	Total	288434.128	4254			78020.388	8995		
112	Between	3.291	1	3.291	.0191	372.720	1	372.720	34.1619**
	Within	489779.450	2851	171.792		68484.592	6277	10.910	
	Total	489782.741	2852			68857.312	6278		
121	Between	41.172	1	41.172	.2796	210.122	1	210.122	16.6108**
	Within	359330.335	2441	147.206		71155.040	5625	12.650	
	Total	359371.507	2442			71365.162	5626		
122	Between	79.468	1	79.468	.6600	761.021	1	761.021	64.6044**
	Within	321445.401	2670	120.392		70478.364	5983	11.780	
	Total	321524.868	2671			71239.385	5984		
123	Between	247.599	1	247.599	3.1412	154.833	1	154.833	15.6211**
	Within	213688.878	2711	78.823		57647.505	5816	9.912	
	Total	213936.476	2712			57802.338	5817		

**Significant at .01 level of confidence
*Significant at .05 level of confidence

TABLE 2.12

DISTRIBUTION OF EXPERIMENTAL, CONTROL, AND MIXED SCHOOLS BY THEIR SOCIO-ECONOMIC RANKINGS
(N=19)

Income Rating		Education Rating	Majority Occupation					
			White Collar			Blue Collar		
			Exp.	Control	Mixed	Exp.	Control	Mixed
3	-----	4	041					
3	-----	5		112	081			
4	-----	4	121 122 123					
4	-----	5		031	082	032 061 111		071 072 073
5	-----	5				021	011 023	051 074

in other schools outside of the district. In some instances graded and nongraded classes are found within the same school. These are labeled "mixed" in the presentation which follows.

There is a striking over-all balance in the distribution of schools in the categories employed to measure the socio-economic status of the schools within the study. While differences can be found, they tend to be slight. For example, more school-communities (11) can be found with a predominance of blue collar workers than white collar workers (8) and within this breakdown there are more experimental units than control units. But when one adds to this, the schools with mixed classes a better representation appears to emerge. Furthermore, when income and education rankings are joined with occupational status these variations tend to pale and gross differences in the socio-economic status of communities with nongraded programs and graded programs are much less pronounced. All in all, then, major discrepancies in the socio-economic status of the schools with experimental and control programs appear to be few and possibly insignificant.

An attempt was made to classify the schools by the "type of community" in which they are located. Data on the size and location of the community along with the socio-economic data referred to earlier would give a fairly complete and meaningful picture of the localities involved in this evaluation.

The Federal Census categorizes areas by characteristics paralleling the more popular concepts of large cities, suburban areas, and rural areas.[24] Organizing the localities represented in this study on a similar basis now allows other school comparisons between them and similar localities in New York State and in the Nation as a whole. In Table 2.13 the schools are grouped by community type, and the figures used to compute the socio-economic index are presented so comparisons can be made.

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[24] For Census purposes, places are categorized by a series of criteria relating to the legal status of an area, its size and density of population, and its proximity to major population areas. On such bases, the units are divided into "urban" and "rural". The urban population is further classified into the "central cities" and "urban fringe" of the highly populated urbanized areas, and the smaller sized "other urban" places.

The first conclusion flowing from these data is that representation from each community type is present in the study. Following hard upon the heels of the conclusion, however, is the recognition that this representation is far from equal. A disproportionate number of communities participating in this study are sururban communities (11) and considerably less representation from rural areas (3) and large cities (4) is found. While inequality in representation exists, it is not so great that the analysis planned for appraising the influence of nongrading by community type cannot be undertaken. In passing, one further comment should be made. While participation in this study was voluntary, to be considered for inclusion a school first had to be nongraded. Perhaps the distribution of schools by community type reflects a pattern for the adoption of nongrading found by community type in the State. That is, nongrading may be more common in schools in suburban communities that in rural areas or large cities. Furthermore, if suburban school districts have a tendency to adopt nongrading more readily than rural areas or large city school districts, they may be highly representative of community types with nongraded programs in New York State.

Impressionistically, an additional conclusion seems supportable from these data. The communities involved in this study are quite representative of their respective community types throughout the State and Nation. The number of instances of marked differences in the major occupation, mean years of schooling, or mean income are few and far between. This generalization is true regardless of community type: surburban, rural area, or large city.

Fortified with these data, the findings of the study might merit more general applicability than would seem warranted by the selection procedures.

TABLE 2.13

SOCIO-ECONOMIC RANKINGS OF NATIONAL, STATE, AND STUDY GROUPS
BY KIND OF COMMUNITY

Population Group	Education		Income		Majority Occupation
	Mean in Years	Rating	Mean in Dollars	Rating	
		Suburban			
National	10.7	5	$8,355.	4	Blue Collar
New York State	10.8	5	9,213	3	White Collar
Study Group					
031	10.7	5	$9,085.	4	White
032	10.6	5	8,855.	4	Blue
041	11.6	4	11,318.	3	White
061	10.4	5	7,425.	4	Blue
081	11.4	5	9,451.	3	White
082	11.2	5	8,928.	4	White
111	11.4	5	8,748.	4	Blue
112	11.2	5	10,343.	3	White
121	11.5	4	8,949.	4	White
122	11.6	4	8,740.	4	White
123	11.8	4	8,801.	4	White

TABLE 2.13 (continued)

Population Group	Education		Income		Majority Occupation
	Mean in Years	Rating	Mean in Dollars	Rating	
Rural					
National	9.1	6	$5,176.	5	Blue Collar
New York State	10.1	5	6,725.	5	Blue Collar
Study Group					
011	10.0	5	$6,263.	5	Blue
021	10.2	5	6,667.	5	Blue
023	9.6	5	5,112.	5	Blue
Large City					
National	9.8	5	$6,992.	4	Blue Collar
State	9.5	5	7,227.	4	Blue Collar
Study Group					
071	10.0	5	$7,247.	4	Blue
072	10.2	5	7,581.	4	Blue
073	10.4	5	7,930.	4	Blue
074	10.2	5	5,928.	5	Blue

precepts of the ideal research design are present. Ideally, all students in the "experimental group" would receive identical or substantially equivalent treatment. But, since schools had considerable latitude in developing and operating their nongraded programs unconditional guarantees of this identity cannot be issued. But, an effort was made to blunt the impact of this potential for variability by having the participants agree to have certain common instructional features reflected in their nongraded programs.[27] These statements are extremely molar and the way in which they become operative in a district is largely a matter of individual perception of their meaning and the concepts they hold of a nongraded school. Perhaps nongrading requires this latitude and should not become too structured since it is the very prescriptive nature of the graded school that nongraded programs seek to avoid.

The anticipated variation was indeed forthcoming and each school put into operation its particular interpretation of the nongraded school. To ascertain the magnitude of these differences six criteria were developed for program analysis: (1) the length of time the school has had a nongraded program; (2) the curriculum areas nongraded; (3) the sequential organization of the school's program; (4) the type of class organization; (5) the criteria used for grouping children; and (6) staffing patterns. The information for each of these categories was gathered from each school's Activity Logue which was submitted annually to the project office. Verification of the accuracy of this information was provided on June 9, 1966 at a meeting of the participating schools in West Irondequoit, New York. Few substantive changes were necessary and changes made tended to be corrections in the length of time the nongraded program had been in operation and the curriculum areas where nongrading was taking place. A graphic representation of the variations found in the program is presented in Figure 2.1.

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[27] See p. 19.

Program Elements		Experimental Programs										Control Programs					
		021-2	032	061-2	071	072 073 074	081 082	111	041	051	121 122 123	011 023 072 073 074	031 051	071	081	082	112
	Year Started	'62	'62	'60	'62	'62	'58	'64	'64	'64	'64	-	-	-	-	-	-
Sequential Organization[b]	1 - 3					X											
	1 - 4				X												
	1 - 6		X				X[c]						Does not apply				
	1 - 3, 4 - 5			X													
	(1,2,3)(4,5,6)										X						
	K - 3																
	K, 1 - 3	X							X	X							
	K, 1 - 4							X									
Subjects Nongraded	Reading (R)	X	X	X	X	X	X	X	X	X	X						
	Arithmetic (A)	X	X	X	X	X	X	X	X	X	X						
	Language Arts (LA)	X	X		X	X	X			X			Does not apply				
	Science (Sc)				d	d		X									
	Social Studies (SS)				d	d	X										
	Other (Art, Music, etc.)							X									
Staff Utilization	Yearly Assignment	X	X	X								X	X	X	X	X	X
	Cycling				X	X	X	X		X (Homerm)							
	Flexible Utilization								X	X (Subj.)	X						

Class Organization	Self-contained	X	X	X	X	X	X	X				X	X	X			X
	Cross-class grouping								X[f]	X (Other)	X				X		
	Cross-class-grade grouping									X (R, M)							
Criteria for Class Grouping	Homogeneous	X	X	X					X (LA,M)	X (R,LA, M)	X (R,M)						
	Heterogeneous				X[e]	X[e]	X		X[e]	X (Homeroom)		X[e]		X[e]	X	X	X
	Interage				X		X	X		X (Homerm)				X			
	Achievement in:																
	Reading	X	X	X						X	X[e]						
	Math								X	X	X[e]						
	L.A.								X	X							
	Ability																
	Interests									X (SS,Sc)							

Figure 2.1.--Descriptions of the experimental and the control programs being conducted in the schools participating in the evaluation of the nongraded primary.

[a] Source: Activity Logues, brochures, and other written reports submitted to the project office by the participating schools.

[b] The following notation is being used: former grades combined into one nongraded unit are connected by a dash (e.g. 1 - 3); former grades considered as separate nongraded units are separated by commas (e.g. K, 1 - 3); parentheses are used in combination with commas to denote instances in which a unit is formed, within which divisions of some sort are maintained [e.g. (1,2,3)].

[c] As of 1964-65 the Sr. H.S. was also nongraded in some areas.

[d] Science and Social Studies are handled according to interests and abilities.

[e] Considerations given to such factors as age, ability achievement, and/or social and emotional development.

[f] Cross-class grouping occurs at the second and third year level.

New York State Education Department data.-- The second source of community data comes from the New York State Education Department.[25] These data emanate from the State-wide testing program discussed earlier where "community-type" is one method used in reporting results of the program to the participating schools. The seven possible classifications are listed below:

1. New York City - Pupils enrolled in all public and nonpublic schools in the New York City school district.

2. Large size cities - Pupils enrolled in all public and nonpublic schools in the city school districts of Albany, Buffalo, Rochester, Syracuse, and Yonkers (the "Big Five") and all other cities with a gross population in excess of 100,000 (1960 Federal census).

3. Medium size cities - Pupils enrolled in all public and nonpublic schools in all city school districts with the size range of 50,000 to 100,000 in gross population (1960 Federal census).

4. Small size cities - Pupils enrolled in all public and nonpublic schools in city school districts not included in the above three types.

5. Village and large central school districts - Pupils enrolled in all public and nonpublic schools in school districts under village superintendencies and in central and union free school districts with pupil populations (fall 1964) greater than 2,500.

6. Large rural school districts - Pupils enrolled in all public and nonpublic schools in central and union free school districts with pupil populations (fall 1964) from 1,100 to 2,500.

7. Small rural school districts - Pupils enrolled in all public and nonpublic schools in small rural school districts not included in the above categories.[26]

The New York State Education Department's data on community-type as presented in Table 2.14 tends to strengthen some of the earlier impressions gained from the Census data on the communities participating in this study. Clearly, there is a heavy concentration of "suburban-type" communities represented in this evaluation and an accompanying under-representation of schools from other type communities. In fact, the percentage

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[25] State Education Department, New York State Pupil Evaluation Program (Albany, New York: The University of the State of New York, n.d.), p. 3. (Mimeographed.)

[26] Ibid., p. 2.

TABLE 2.14

DISTRIBUTION OF SCHOOL DISTRICTS BY COMMUNITY TYPE: STUDY GROUP AND NEW YORK STATE TOTALS[a]

Community Type	Districts in the Study Group		Districts in New York State	
	N	%	N	%
1	-	-	1	13.13
2	1	10.0	6	.79
3	-	-	11	1.46
4	-	-	48	6.34
5	6	60.0	243	32.10
6	1	10.0	185	24.44
7	2	20.0	263	34.74
Total	10	100.0	757	100.00

[a] Source: New York State Education Department

representation of "village and large central school districts" in the study is nearly twice that found in the State in general. Similarly, a compensating under-representation of schools from the other types of communities can be noted. Rural communities' representation, for example, is notably small and disproportionate to that of the State in general.

While community-type representation in this study is probably atypical, it provides a basis upon which to speculate about the similarities and differences noted earlier in student performance on the New York State Pupil Evaluation Program. Conceivably, the participants form an adequate model of the "suburban-type" communities found in the State and this could explain the marked similarities in the performance of students from the study group and those from C-type schools. Conversely, the non-representativeness of the other communities involved in the study with communities throughout the State could go a long way towards explaining why marked differences were found in the attainments of students in the study group and those throughout the State.

Rewarding as these explanations may be, one fact remains; the communities participating in this study are non-representative of communities throughout the State. Given these conditions, one would be ill-advised to transfer the findings of this study to other schools or other nongraded programs uncritically. Considerable care should be taken to be sure these schools and programs approximate those included in this study before such transference would be justified.

Programs

Of all the variables included in this evaluation, doubtlessly, the most important, are the programs themselves for they are central to the study. Essentially, these are the independent variables, the "experimental treatments," the differences between the graded and the nongraded schools. However, here too, departure from the one distinguishing feature of the nongraded programs in the participating schools is their age. For most schools nongrading is an innovation since it was adopted on or about the date this evaluation commenced. In one or two other instances, however, nongrading can hardly be considered an innovation. Rather, it is the established pattern for school organization for these programs have been in operation since the late fifties. All-in-all, then, while differences in the length of time schools have operated their nongraded programs can be found they are not so great as to make them totally dissimilar on this measure.

The same is not true for other measures. When one considers the sequential organizations developed to produce nongrading he is struck by the curious combination of similarities and differences. First, all schools have nongraded primary units, but not all schools include the same classes in this division. All but four schools exclude Kindergarten from this division and even these schools do not involve their Kindergartens in their nongraded programs in precisely the same way. None of the four, however, has made the Kindergarten an integral part of the nongraded unit; the schools seem to maintain the Kindergartens as discrete instructional units to which the principles of nongrading are applied. Next, while nongrading can be found in all of the primary units it has not permeated the entire school. As a matter of fact, only five of the schools in the study have totally nongraded schools. Two of these are neighborhood primary schools with third and fourth year classes respectively while the remaining three are the more familar K-6 schools. It should be indicated that four of the schools with partially nongraded schools have plans for the orderly introdution of nongrading to all classes in these schools. Each year, as the children with whom nongrading was started move through the elementary school, an additional year of the program is nongraded. Finally, the participants view the elements of these units differently. All but three of the schools have regrouped their former grades into larger instructional units. The remaining schools still view their former classes as independent rather than interdependent units to which the tenets of nongrading are applied.

Variability also characterizes the extent to which the curriculums in these schools have been nongraded. All schools, of course, nongraded their reading and arithmetic programs; this was a requirement for participation in the study. All but six schools have extended nongrading to include Language Arts, too. But few schools have an entirely nongraded curriculum. There are signs that efforts to do so are being made and some schools group children for instruction in science and social studies by interest. One school has even applied the principles of nongrading to instruction in music and art. Generally, however, nongrading is most universally applied to instruction in reading and arithmetic.

To achieve the ideals of the nongraded school most of the participants have used teacher cycling and one teacher works with a group of children for more than one school year. Only three schools continue to assign teachers to classes annually while an additional three schools have flexible utilization of staff. In the latter scheme, teachers are assigned to specific instructional levels and children, when ready, are moved to these levels for instruction.

Similarity characterizes the classroom organization of most of the nongraded schools. By and large, the self-contained classroom dominates. Only six schools use other patterns and cross-class grouping is the most prevalent of these. Classes are formed by combining children of similar ability at the same year level in school for instruction. Only one school draws children from various year levels to form instructional units and crosses grade or age lines to form such units.

When forming classes, schools are about equally divided in their use of homogeneous and heterogeneous grouping practices. While performance is commonly cited as the consideration used when assigning children to classes, these schools also note they consider other factors such as age, ability, social and emotional development, and the like. Interage grouping is infrequently used when developing classes. Only four schools report they have such instructional units in their nongraded programs.

As might be expected, considerably more consistency in organizational practices characterizes the control schools. Typically, they have self-contained classes to which teachers are assigned annually to teach a heterogeneously grouped class of students. Essentially, this is a textbook description of the organization for instruction in a typical graded school.

From the outset differences in organizational practices in the nongraded schools were anticipated. They were found and are real. Different though these programs are, a sufficient number of common features run through them to permit the establishment of a classification system. Each of the nongraded programs operative in the schools in this study falls into one of the categories listed below.

	Class Organization	Criteria for Class Grouping	Staff Utilization
A.	Self-contained	Homogeneous by reading achievement	Yearly assignment
B.	Self-contained	Heterogeneous	Teacher cycling
C.	Cross-class and/or cross-class-grade	Homogeneous by achievement in the specific subject (reading or arithmetic)	Flexible utilization

The nongraded programs of each of the schools participating in this evaluation can be classified in one of the three categories listed above. Furthermore, these programs appear to be sufficiently discrete to permit an analysis of the relative influence of each of these nongrading models on the efficacy of the nongraded school.

Materials

To generate the data needed for this study a number of instruments were used. Some are common to educational evaluation and are readily available from commercial sources. Others, however, were specific to the study and had to be created. Since pupils, teachers, and principals provide the major portions of the data needed, measures of their performance were gathered.

Pupil Data

The pupil information gathered is essentially their scores on achievement tests, intelligence tests, and their ratings on an adjustment inventory. Other students-related data, such as number of years in the nongraded program and the like were also needed, but this was essentially an inventory job rather than measurement and elaborate devices for gathering it were not needed.

Achievement

Because the impact of nongrading on student school performance is a concern of this study, measures for it were needed. Most schools routinely gather this information and have a regular testing program for this purpose. However, a seemingly limitless number of tests for this purpose are available and one instrument had to be selected. Ideally, it would be a reputable test and commonly used by the participating school districts. If such a test existed it would avoid the necessity of introducing a test, and possibly a testing program, new to the schools because of their participation in the project. This consideration assumes major importance when we consider that not all classes in each school district participated in the study. Under these conditions, selecting a test different from that commonly used in the district's testing program could mean an increase, and possibly an inordinate increase, in the amount of testing required of some children because of their participation in this project. This would be particularly true in cases where a district-wide testing program was in operation and the children participating in this project would not be exempted from it because of their participation in this study.

To ascertain the achievement tests currently used by the participating school districts a survey of achievement test utilization in these schools was undertaken on March 2, 1964. The results of this survey are presented on the following page. The reader will recall that certain schools were added to the project after its initiation and others subsequently withdrew. The tabulations in Figure 2.2 reflect these changes.

Obviously, little continuity exists in the choice of achievement tests or in testing programs among the participating school districts. Not only is there considerable variability in the tests used to measure student achievement at the primary level, but a substantial number of districts reported no consistant evaluation program. The situation is further complicated since some schools use more than one test at the primary level and some districts use one test in the first year and other districts use the same test at the second year. If the pattern of appraising student achievement at the primary level is complex, it is even more bewildering at the intermediate level. Certainly, the number of districts using achievement tests increases, but so do the variations in the tests used and no clear pattern of test utilization emerges. Briefly, the value of the survey conducted as an aid to selecting a common and appropriate test to measure student achievement is questionable at best.

Nonetheless, an achievement test had to be selected. Clearly the Metropolitan Achievement Tests were most frequently and consistently used at the primary levels. If the investigation had been confined to this level exclusively no further consideration of the test to be selected would have been necessary since the publishers report substantial coefficients of reliability for the reading and arithmetic subtests (.80 to .95) and claim content, curriculum and jury validation for this measure. Furthermore,

Test	Grade						Total
	1	2	3	4	5	6	
Gates Reading Readiness - Advanced		2					2
Gates Reading Readiness - Primary	2	1					3
Gates Reading Survey				1			1
Harrison-Stroud Reading Readiness	1						1
Iowa Test of Basic Skills			2	4	4	4	14
Metropolitan	2	2	3	2	2	2	13
New York State Survey							
Arithmetic		1	1		1	1	4
Reading			1		1	1	3
Science						1	1
Social Studies						1	1
Science Research Associates		1	1	1	1	1	5
Stanford Achievement		1					1
None	3	1					4

Figure 2.2.-- Standardized achievement tests used by schools participating in the evaluation of the nongraded school project

scrupulous adherence to the canons of test construction appears to have been observed.[28] However, intermediate classes were to participate in the evaluation and the tests used at this level had to be considered in making the final selection. Examination of the testing programs at this level indicates a preference for the Iowa Tests of Basic Skills. Obviously, the differences in the number of schools using each test are small and adequate justification for the selection of either test as a measure of achievement existed. Before making the final selection, however, consideration was given to the measurement advantages of each test. Discriminate differences were not found here. The differences in the mean grade equivalents and standard deviations for each test were found to be inconsequential and, futhermore, there is a high, positive correlation between these tests and their subtests.[29] Since the tests were deemed equal, and the Metropolitan appeared to be the preferred measure at the primary level, the principle of consistency governed the choice and the Metropolitan Achievement Tests were selected as the measure of achievement for this evaluation.

Intelligence

Procedures identical to those described above were employed in selecting an intelligence test. Here considerably more congruence existed among the participants in the test used to measure intelligence, but the similarity was far from perfect. Furthermore, as apparent from Figure 2.3, many schools have no regular program for intelligence testing, and the administration of any intelligence test was a departure from their standard procedures. However, where intelligence testing was used, the Calfornia Test of Mental Maturity appears to be the preferred measure and so this was

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[28] Walter N. Durost (ed.), Directions for Administering Metropolitan Achievement Tests (New York: Harcourt, Brace & World, Inc., 1959).

[29] Carmen J. Finley, "A Comparison of the California Achievement Test, Metropolitan Achievement Test and Iowa Test of Basic Skills," California Journal of Educational Research, Vol. XIV (March, 1963), pp. 79-88.

Test	Grade						Total
	1	2	3	4	5	6	
California Mental Maturity	1	2	2		2	1	8
Hemmon-Nelson						1	1
Lorge-Thorndike			1	1	1	1	4
N.Y. State Survey of School Ability						1	1
Otis Quick Scoring			1				1
SRA - Ed. Ability					1		1
None	4	4	2	5	2	1	18

Figure 2.3. -- Standardized intelligence tests used by schools participating in the evaluation of the nongraded school project

selected for use in the study.

Furthermore, the California Test of Mental Maturity is a creditable device for appraising intelligence and appropriate for the purpose of this evaluation. The coefficients of reliability, while somewhat depressed, are sufficiently high to place confidence in the results. The coefficients for internal consistency range from .80 to .95 for the subtests of the measure and coefficients ranging from .72 to .81 for the subtests are obtained when the 1963 Short-Form of the California is correlated with the 1957 edition.[30]

Adjustment

Student adjustment has, indeed, high priority in education and is a principal dependent variable of this investigation. However deeply desired, unerring assessment of student adjustment is illusive at best. But this is not the product of inertia, for measurement of student adjustment is apparently a consuming educational interest and, conservatively, the best estimate of the number of instruments developed for this purpose would be vast. However, the applicability of many of these instruments to the present study is at best marginal and at worst nil.

Before selecting a device for measuring student adjustment Buros' Mental Measurements Yearbook and Tests in Print were combed for sources of adjustment-measuring instruments. Countless other sources were also consulted and scores of seemingly appropriate instruments identified. After examining these sources, however, the number of usable instruments quickly diminished.

Unfortunately, many of the measures cited in the literature are either out of print, out of stock, or just plain not available. The residue was examined and, unhappily, many of these were found inappropriate. Some were so gross that their meaningfulness was questionable. On the other hand, some were extremely complex or required individual administration. Clearly, with the large number of students involved in this study, these tests could not be considered. Additionally, the nature of the test itself prompted the elimination of others. Several creditable adjustment inventories were designed for older, literate students and since the children participating in this study were, by and large, young children whose reading skills had not reached their full potential, these measures could not be employed. These, and similar considerations, helped to reduce the initial harvest of available measures to a manageable, if meager, selection of instruments. After considering the remaining tests' validity and reliability credentials, the final selection narrowed to Pupil Portraits as the device to be utilized for measuring pupil adjustment.

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[30] Oscar Kresen Buros (ed.), The Sixth Mental Measurements Yearbook (Highland Park, N.J.: The Gryphon Press, 1965), p. 696.

Pupil Portraits overcomes many of the above mentioned objections. First, it was constructed for group measurement with elementary school children and its authors intentionally kept its index of readability low. Second, in addition to yielding an over-all adjustment score, the measure provides estimates of the child's adjustment to school, his classmates, his teacher, and his home as well as a measure of personal adjustment. Pupil Portraits has one additional dividend. Parallel forms of the test are available so alternate forms of the test could be used in successive years.

Moreover, the norming procedures were acceptable. In building items for the test, the authors relied on other well-known and well-established adjustment measures. The discriminate value of these items was ascertained by the "known group" technique. An experimental form of Pupil Portraits was administered to 600 well-adjusted and maladjusted pupils and only items which discriminated between the groups were retained in the final form of the test. Lastly, substantial correlations, .935, between Forms A and B of Pupil Portraits are reported. Despite its age, the test has worn well and was deemed an appropriate measure for the purpose of this study.

Demographic Characteristics

The relation between student demography and the efficacy of nongradedness is evaluated, too. This information, by and large, is factual, and elaborate data-collection instruments were not needed. Other demographic data, *such as number of years in a nongraded program* and *rate of student progress*, were supplied by the school either directly on the tests or on a simple survey form sent to them.

Socio-economic status is perhaps the one demographic characteristic which was gathered differently, but still the process was not complex. On *Pupil Portraits* students recorded their father's occupation which was converted into a status measure by means of a nine point socio-economic scale for occupations.

Staff

There is a popular belief that the staff of a school, more than an innovation, determine educational excellence. This study hoped to apply this belief to its evaluation of the nongraded school by looking at the relation between the staff and the product of their instruction. Essentially, we wanted to know two things about the staffs in these schools: their understandings and acceptance of the principles of the nongraded school and secondly, the way in which they translate these precepts into practice. Auxiliary staff data were gathered, too. This was, however, primarily demographic and intended to assess the influence of age, experience, and education on the attitudes and performances of teachers in nongraded schools. Clearly, the measures of attitude and performance are specific to this investigation and instruments for their measurement had to be developed.

Education Opinion Inventory

Should the supporting contentions of the nongraded school be alien to the teacher the likelihood that any real program modifications will take place are severely diminished. Therefore, two soundings from principals and teachers had to be taken regarding the nongraded school. First, a measure of their knowledge of the supporting beliefs of nongradedness in theory and practice was needed. Secondly, estimates of their acceptance of these canons were wanted. Hopefully, the Education Opinion Inventory would provide these measures.

Basically, the Education Opinion Inventory is a five-category, 105 item instrument designed to assess one's knowledge and acceptance of the principles of the nongraded school. The distribution of items within categories is presented below.

Category	No. of Items
Individual Differences	21
Pupil Evaluation and Progress	23
Curriculum	17
Organization for Instruction	16
Instructional Methods	27

By dividing the instrument into categories, individual or area-type assessments could be made of the staff's knowledge and acceptance of the tenets of the nongraded school as well as an over-all assessment.

Since two measures of the staff's position on the nongraded school were needed, the Educational Opinion Inventory was built to provide these data. The illustration below provides some general impressions on how this was achieved and further clarification can be had by reviewing the entire instrument in the Appendix.

			My Response is Based Upon		
Agree	Disagree		Professional Reading	Experience or Observation	Intuition or "Hunch"
☐	☐	Skipping bright pupils contributes most to continuous learning progress.	☐	☐	☐

In constructing the inventory, neutrality was the watchword and overt references to the nongraded school were carefully avoided. Even its title is deliberately vague to avoid cuing respondents to "preferred" answers. In building items, heavy reliance was placed on Goodlad and Anderson's discussions of individual differences, pupil progress, evaluation, curriculum, instruction, and organization of learning in a nongraded school. Futhermore, their writings on these topics were springboards to additional literature in these areas and subsequently additional items for the inventory.

For pretesting, the Education Opinion Inventory was administered to the teachers in two elementary schools on Long Island in communities quite similar to those participating in the study. In estimating the reliability of the Inventory, these administrations were treated independently since the participants were from different school districts. The Kuder-Richardson formula No. 20 was applied to each of the sub-sections of the Inventory and the results of these analyses are found in Table 2.15.

TABLE 2.15

ESTIMATES OF THE RELIABILITY OF SECTIONS OF THE EDUCATION OPINION INVENTORY FROM TWO SCHOOLS INVOLVED IN THE PRE-TESTING PROGRAM

	Test Section				
	I	II	III	IV	V
Group A	.97	.97	.97	.99	.95
Group B	.98	.98	.98	.99	.97

Obviously, the resulting coefficients are impressively high from each of the independent administrations and the Education Opinion Inventory appears to be a reliable measure of a teacher's understanding of the tenets of the nongraded school.

Empirical validation of the instrument was also undertaken. Table 2.16 presents intercorrelations from the first administration of the Education Opinion Inventory with the participants in the study. Correlations were obtained for the two

TABLE 2.16

INTERCORRELATIONS FOR SUBSECTIONS OF THE EDUCATION OPINION INVENTORY (n=174)

		ACCEPTANCE				KNOWLEDGE				
		Pupil Evaluation and Progress	Curriculum	Organization for Instruction	Instructional Methods	Individual Differences	Pupil Evaluation and Progress	Curriculum	Organization for Instruction	Instructional Methods
ACCEPTANCE	Individual Differences	.201**	.470**	.414**	.533**	.201**	.067	.029	.068	.058
	Pupil Evaluation and Progress		.159*	.184*	.153*	.043	.045	.083	.094	.073
	Curriculum			.472**	.551**	.116	.056	.004	.031	.057
	Organization for Instruction				.515**	.118	.047	.096	.103	.027
	Instructional Methods					.111	.067	.062	.162	.052
	Total Score					.177*	.101	.081	.108	.030
KNOWLEDGE	Individual Differences						.468**	.445**	.467**	.554**
	Pupil Evaluation and Progress							.556**	.500**	.552**
	Curriculum								.465**	.517**
	Organization for Instruction									.515**

major factors, knowledge and acceptance of the principles of the nongraded school, measured by the Inventory and their five subsections. Clearly, knowledge and acceptance appear to be independent factors for their intercorrelation coefficients are low and negligible. This, however, could be bogus since the spread of these scores on the knowledge portion of the Inventory is greatly restricted. Excepting interrelations involving Pupil Evaluation and Progress on the acceptance dimension, all coefficients are substantial and suggest the Inventory's subsections may not be discrete and excessive dependence on them is probably unwarranted. The total scores for acceptance and knowledge are likely the most informative and appropriate measures to use.

Defensible as these criticisms and suggestions for limitations are, they will not be strictly observed in this study. First, this is principally an exploratory study of the nongraded school. As such, it seeks to highlight, not hide, all possible differences. So, all possible contributors to the successful operation of nongraded instructional programs should be identified if and where possible at this time. For example, nongradedness itself is not a single variable as used in this study. At least three prototype patterns of nongraded programs have been identified. Conceivably, the dimensions of nongrading measured by the Education Opinion Inventory are more prevalent and more beneficial in one of these types than the others. If so, this should be known. Restrictions on the instrument will not permit these to surface if they are, indeed, present. Furthermore, the Inventory itself is a new and somewhat exploratory measuring instrument which needs study, refinement and development for use in future evaluations of the nongraded school. Performing a fullsome analysis of the data it provides may furnish insights to the kinds of modifications the Inventory may need. For these reasons, then, all part scores generated by the Education Opinion Inventory will be used in the analyses planned.

Nongraded Primaries in Action

The importance of knowing what distinguishes a nongraded school from a graded school has been discussed previously and an extensive recapitulation of these points is not justified here. Suffice it to say that if the differences in instructional practices in graded and nongraded schools are indistinguishable, the likelihood that meaningful alterations in educational experiences of boys and girls are occurring is equally remote. If enduring educational benefits are to accrue to the learner they will come as a result of operational differences in the programs found in graded and nongraded schools rather than the articulation of the guiding principles of the nongraded school movement by the staffs of the schools claiming to have nongraded programs. For these reasons, scheduled, "on site" visits to the graded and nongraded classes participating in this study were an integral part of this evaluation and a source of data to be used in the analysis. To standardize these visits and the reports emanating from them Nongraded Primaries in Action was developed.

Basically, the guide is developed about the salient contention of the nongraded school, individual differences among children. Six major categories are used to clock the extent to which individual differences are recognized and accommodated in the day-to-day classroom instruction of children in these schools. They are:

1. Identifying Individual Differences. -- This section is predicated on the belief that without reasonably precise information on the differences found among children the probabilities are small that instruction can be tailored to accommodate these differences. Essentially, what we are saying is instruction cannot be modified to conform to differences so long as these differences are unknown because explicit information on the types of accommodations dictated by these differences is unknown, too.

2. Pacing Instruction. -- This section is a logical consequence of the above. Supportive of it is the contention that it is not sufficient to know that differences exist, even in the specific, if this knowledge does not cause modifications in instruction. Children vary not only in the gross amount of information and skill they possess but also in the rate at which they can acquire additional information and skill. Given

these differences, effective instruction would seem to mandate differentiation in the rate at which instruction is offered children.

3. Materials of Instruction Available. -- If differentiated instruction is to be a hallmark of the nongraded school it seems palpable that particularized instructional "tools" appropriate to the task at hand should not only be in evidence in these classes, but in use. It is questionable, to say the least, to equip each class with a-copy-per-child of a basal textbook and pretend that it can be used to meet individual differences. If we believe in differences in children we must also believe that for many children in these classes such materials will be irrelevant for their instructional needs. Surely, diverse instructional materials compatible with the differences in development found in children should not only be found in nongraded classes, but in use.

4. Library Services. -- Furthermore, if schools truly believe the differences found in children are extensive and pervasive they must also accept the inherent limitations of traditional instructional materials in providing for these differences. Interest differences, as well as differences in the more traditional academic domain, might also be expected to be found in children. So schools dedicated to the task of ministering to these differences, such as the nongraded school, might legitimately be expected to have readily accessible and in use a wide variety of auxiliary learning materials. These would, more than likely, take the form of supportive library services and materials.

5. Adjusting Learning Time. -- The advocates of the nongraded school indicate, and rightly, that marked differences are found in rates of learning. If schools, particularly nongraded schools, have taken cognizance of these distinctions and are doing something about them, discriminations in the time allotted for learning should charaterize these schools and not all children would be expected to accomplish identical goals in the same time. That is, not only would all children not be working towards the same end, but the time for completion of these differentiated tasks would also vary.

6. Classroom Organization. -- If the variability in children discussed in the sections above is a barometer for the kinds of adjustments schools should make in their

instructional program, then the stable, static classroom grouping practices associated with graded schools would be alien to the ends of the nongraded school. Rather, flexibility in organization would characterize these classes and one would expect to see groups of varying size and composition in these rooms. In this way, the learning environment would be constantly modified to provide an optimal instructional setting which was in harmony with the needs of children. Small groups would be formed, instructed, disbanded, and reconstituted in accordance with the present instructional needs of the learner.

Within each of the broad categories in Nongraded Primaries in Action are subdivisions; descriptive statements of discernible practices appropriate to the category. These have been ordered in an attempt to form some type of continuum of practice ranging from "pure" graded to "idealized" nongraded. Under the category "Materials of Instruction Available," for example, the following subdivisions are found: "Single Graded Instructional Materials"; "Instructional Materials from Earlier Grades";"Instructional Materials from Advanced Grades"; and "Diversified Instructional Materials". The implicit belief supporting these divisions is that the overt actions taken to provide instruction in harmony with the differences found among children are more eloquent testimony of one's commitment to the tenets of the nongraded school than any proclamations issued in its behalf. For example, classes stocked with "Single Graded Instructional Materials" appear to articulate rather unmistakably a belief in an identity among learners rather than differences: and this is a salient component in the graded, not the nongraded, school philosophy. Moreover, when "Instructional Materials from Earlier Classes" are added to a basic supply of "grade level" instructional materials, it represents only a modest alteration in the supporting doctrines of the graded school. In this case, apt recognition is accorded the belief that pre-designated levels of accomplishments can be associated with specific levels of schooling. But, unlike "pure" graded school practice, it recognizes that these levels will not be attained by all children simultaneously. The levels of accomplishment are, nonetheless, specific and essentially the ceilings placed on learning by the graded school have not been raised. These are "remedial-type" programs more than individualized instructional programs for the learning protocol reminiscent of the graded school is not seriously challenged. The next category, utilization of "Instructional Materials from Advanced Grades" concurrently with instructional materials designated for use at this particular class level, appears at first blush to be the other side of the coin described above. However, considerable differences seem to have motivated these two procedures. In the first instance there appears to be a solid commitment to the notion of a pre-ordained learning sequence and the educational expectations for the primary years are clearly fixed. Restrictiveness seems to characterize this position. In the latter instance, a greater willingness to depart from the pre-established emerges. Here recognition is accorded the underlying weakness in establishing pre-determined learning goals for there is a demonstrated willingness to cross grade lines and bring to children educational experiences which might otherwise be delayed. Essentially, this procedure is designed to raise the ceilings placed on learning in the graded school. Clearly, the mid-ground between these two positions seems to be the most fertile land on which to erect the nongraded school. If errorless translationsof the teachings of the nongraded school find their way into classroom practices one would expect to find overt efforts to adjust both the instructional ceilings and floors to accommodate individual differences. To achieve this, "Diversified Instructional Materials" would customarily and consistently be utilized in instruction. This practice seems to be the most significant departure from the prescriptiveness of the graded school and a major stride along the road leading to the gradeless school. It seems to say that routinely one should expect to find considerable differences in the learning attainments of boys and girls and classes should be equipped to meet these differences with a wide range of instructional materials.

This, then, is the structure of Nongraded Primaries in Action and its supporting rationale seems consonant with the objectives of the nongraded school. At the outset it must be stressed that the guide sought to keep subjective impressions at a minimum and value judgments about the worth of the content being taught were discouraged. Judgments about the goodness of the texts in use, the relative merits of modern and traditional math programs, and the like were neither encouraged nor accepted. These were, in the author's estimate, curriculum considerations wholly within the jurisdiction of the participating school districts and not central concerns to the current investigation.

Each class participating in the study was visited twice a year during the project: once near the middle of the first semester and once near the middle of the second semester. This distribution of visits, it is believed, was justified since it provided sufficient time to place into operation any changes in instructional procedures dictated by the school's commitment to nongrading. Should visits have been scheduled at the start of the school year teachers may not have known their children well enough to develop the modifications in instructional procedures dictated by the differences among them. If visits were scheduled for the end of the school year, mounting end-of-the-year pressures may have necessitated compromises with customary class routines and a true picture of what typically occurs in these classes may have been lost. Additionally, the author believes that teachers, like all human beings, require time to learn and adapt their behavior to conform to the demands of new situations. It is unrealistic to pretend that instant alterations in the teaching routines appropriate in a graded school will take place the moment a school becomes nongraded. Time is needed to appraise the requirements of the new instructional setting and to formulate pedagogical strategies to fulfill them. While the year devoted to the study of and preparation for nongrading was probably beneficial and conceivably essential, it was probably an inadequate representation of the changes necessitated by nongrading. Direct involvement in a nongraded teaching assignment may be required to portray vividly to teachers their new roles and the changes they must initiate in their instructional procedures if their classes are to be truly nongraded. The calendar adopted for classroom visits seemed to provide this time as adequately as possible when the realities of the conditions under which this investigation was conducted are considered.

Since the participating schools agreed to nongrade in two subjects, reading and arithmetic, visits were planned so teachers would be observed teaching in each of these areas on alternate visits. That is, if a teacher was observed teaching arithmetic on the first visit, arrangements were made to observe her while teaching reading on the next visit. This was the plan. It would be misleading to assume that flawless conformity to this scheme was realized. The exigencies of this type of research make this impossible. But, by and large, the plan was acceptable and reasonably-well followed.

Furthermore, as far as possible, no teacher was scheduled to be seen by the same observer more than once. This was done deliberately for two reasons. First, it tended to preserve and possibly increase the observer's objectivity during these classroom visits. If each observer was scheduled to observe the same teachers during the project the possibility existed that friendships which could lessen the observer's objectivity might develop. Having them see a teacher only once for a half hour lessened these possibilities. Then, too, this procedure tended to control unknown observer biases by rotating them, if they existed, throughout the entire observation process and hopefully lessened their cumulative effect.

Originally it was planned to use the same eight observers during the entire project and considerable stability in the observer population was achieved. Seven of them participated throughout the study and one, because of increased professional responsibility, had to be replaced at the end of the first year of observations. So, during the entire study nine persons shared observations to the participating schools. Generally, too, the observers had enviable credentials for their assignment. Most of them had elementary school teaching experience as well as extensive experience in supervising teachers and student teachers. All of the observers had completed a masters degree and all but one either had or were well on their way towards completing a doctorate in education. The observers, as a group, were well-qualified for the job and possibly possessed abilities which would be difficult to duplicate if this study were replicated.

Two training sessions in the use of Nongraded Primaries in Action were held for the observers prior to its field testing. The first session familiarized them with the guide, its rationale, the nature of the behavior to be observed, and the mode for recording their observations. As a result of this session modifications in the content and wording of the guide took place. Copies of the revised guide were mailed to the observers before the second training session for review. Additional, though minor, editorial-type revisions in the guide resulted from the second training session. At these sessions, common interpretations of the practices listed on the guide were worked out and uniform procedures for recording observations stressed.

The first field testing of the guide took place on November 6, 1964 in a nongraded classroom in a Long Island school not participating in the study. All observers saw the same half hour of instruction in this class and recorded their observations according to the previously agreed on procedures. These data were used to calculate inter-rater reliability coefficients for the guide and coefficients of relation for the major divisions of the guide. The results of these analyses are presented in Table 2.17.

Though the results of the first field testing of Nongraded Primaries in Action were gratifying, a second field testing of the instrument was planned. Two considerations prompted this. First, the coefficients resulting from the initial field testing were high. In fact, they may have been spuriously high. Next, the conditions under which the instrument was initially field tested, while justifiable, were not exact

TABLE 2.17

INTER-RATER RELIABILITY COEFFICIENTS AND COEFFICIENTS OF RELATION BETWEEN ITEMS BASED ON THE FIRST FIELD TESTING OF NONGRADED PRIMARIES IN ACTION

Inter-rater Reliability Coefficients

	A	B	C	D	E	F	G
A							
B	.77						
C	.83	.76					
D	.00	.42	.39				
E	.91	.59	.82	.00			
F	.66	.34	.32	-.61	.43		
G	.86	.86	.91	.32	.68	.53	

Inter-relations between Items

	I	II	III	IV	V	VI
I						
II	-.35					
III	.35	.17				
IV	.26	-.73	.09			
V	.17	.35	.47	.19		
VI	.09	.65	.26	-.64	.55	

replicas of the conditions under which the instrument would be used. Observers would not simply be seeing one teacher during the course of a visit to a school but many teachers and the possibility of making unconscious comparisons between the performances of teachers existed though observers were instructed to evaluate each classroom visit independently.

In the second field testing a more representative procedure was used. One entire elementary school with 20 primary classes was selected for testing the observation guide. The observers were formed into teams of twos and threes, observed instruction, recorded their observations independently, and, after each observation were regrouped again so each observer worked with every other observer during the classroom observations. This procedure produced sets of independent observations for multiple classroom visits and approximated more closely the actual conditions under which the guide would be used than did the first field testing. Furthermore, if an observer deviated from the directions for observing and tended to rank the classroom performance of one teacher against a teacher previously visited, this tendency might become obvious through this procedure. Similarly, if an observer tended to rate lessons in arithmetic and reading differently, if he were more liberal with his ratings in one area than the other, this difference would also show itself by using this procedure.

Generally, the resulting inter-rater coefficients are substantial and range from -.61 to .91. Where substantial differences in coefficients are found they tend to be associated with one rater, rater D. In practically all cases, the coefficients associated with this rater tend to be considerably lower than those found among other raters. Even with these marked discrepancies, an interclass coefficient of .56 for the entire measure was obtained and, so, the reports received from the raters are generally comparable and the measure as a whole is reasonably reliable.

The data from this observation were also used to test the relation among the items in the guide. Ideally, each item in the guide should be independent and measure a single attribute. If this condition obtains, the resulting coefficients among the items in the guide would be low since they are measures of discrete attributes. Should the coefficients be high there is the likelihood that multiple measures of a single attribute are being taken under different names. Generally, the resulting coefficients are low and insignificant and range between -.73 and .65. The high coefficients occur between "Pacing Instruction" and "Library Services" and "Classroom Organization." Possibly a high dependence exists in this area even though the items themselves could be discrete. It could mean that the flexibility found in "Pacing Instruction" dictates the kind of flexibility needed for classroom organization. At any rate, the relation discovered in this area is considerably higher than one would desire.

Changes in the raters for the second field testing of Nongraded Primaries in Action was necessary and these changes are reflected in the matrix found in Table 2.18 Examination of the coefficients in this Table indicates that somewhat more stability was achieved in the ratings reported following the classroom visits and they range from -.37 to 1.00 and this is reflected in a rise in the interclass coefficient to .75.

As before, the data gathered from these observations were used to study the relation between items in the guide. This time there appears to be a considerable shrinkage in the size of the coefficients and one is a little more confident that the items in the guide are discrete and independent. Possibly the disappearance of the discrepancies noted earlier may be attributable to the additional training sessions and the modifications made in the guide following the first field testing of the instrument. Whatever the reasons, it seems that the included items in the guide are independent and discrete.

Data emanating from scheduled observations is sometimes suspect and not without justification. It is alleged the observed behavior can be atypical and thus nonrepresentative. This is particularly true when the person being observed knows why he is being observed. Under these conditions he may ape the behavior he believes the observer wishes to see. In the present study this did not occur. Surely

TABLE 2.18

INTER-RATER RELIABILITY COEFFICIENTS AND COEFFICIENTS OF RELATION BETWEEN ITEMS BASED ON THE SECOND FIELD TESTING OF *NONGRADED PRIMARIES IN ACTION*

Inter-rater Reliability Coefficients

	A	B	D	E	G	P	Q
A							
B	.38						
D	.86	.71					
E	.58	.37	.54				
G	.38	1.00	.71	.89			
P	.00	.63	.71	-.39	.84		
Q	.75	.17	.24	.76	.84	.76	

Inter-relations between Items

	I	II	III	IV	V	VI
I						
II	.63					
III	.31	.43				
IV	.58	.58	.20			
V	.18	.29	-.10	.29		
VI	.42	.50	.64	.36	-.01	

teachers expected visitors since all observations were scheduled. Furthermore, they realized this visit was in some way associated with the study of the nongraded school. But here their information ended. Neither they nor their principals had seen Nongraded Primaries in Action and knew nothing of the type data it collected. Barring familiarity with the instrument it is highly unlikely that they could have modified their behavior to conform to the details of the scale.

Furthermore, the nature of the data sought in these visits all but precluded a "crash preparation program" to make the teacher "look good" on this measure. Observers, for example, sought hard evidence that assessments of children had been undertaken to ascertain their strengths and weaknesses and that programs had been tailored to meet their instructional needs discovered by this process. They examined records, lesson plans, available instructional materials in use and on reserve, and the like. Data such as these are hardly produced to impress a visitor who will be in a class for a half hour. If they exist, they are more likely the product of concerted and consistent efforts.

If, indeed, the teaching observed was stylized its biasing influence would be in one direction. Since teachers were expecting visitors to observe their nongraded classes in action, if they deviated from the instructional procedures typical for that class they would tend to act as they believe teachers in a nongraded class should act. Essentially, then, they were teaching at their nongraded best.

The data from the second pre-testing of Nongraded Primaries in Action were used to perform additional studies of the recorded observations of the raters. Here an item analysis was performed on each subdivision of the measure for each rater in each team of raters observing classes. In this analysis the magnitude of both agreement and disagreement among raters is considered and appropriate indexes developed.[31]

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[31] Theodore M. Newcomb, The Acquaintance Process (New York: Holt, Rinehart and Winston, Inc., 1961), pp. 281-283.

With this procedure it is possible to assess not only the comparability of ratings assigned, but the relative difficulty of each of the subdivisions of the instrument. Essentially, a measure of the magnitude of agreement and disagreement is produced for each subdivision in the observation guide. In measuring agreement, for example, the closer the index comes to unity the greater is the agreement among raters; as it approaches zero, the less the agreement. Similarly, indexes approaching unity on the disagreement scale indicate the disagreements among raters tend to be slight and minor. As the index of disagreement approaches zero it indicates that there is considerable disagreement among the raters.

From the data presented in Table 2.19 it is clear that there is considerable agreement among the ratings assigned by raters to the subdivisions of Nongraded Primaries in Action and disagreements tend to be minor. Fortified with these findings, considerable confidence can be placed in the observations reported by the raters.

TABLE 2.19

ANALYSIS OF AGREEMENT AND DISAGREEMENT AMONG RATERS ON THE SUBDIVISIONS OF NONGRADED PRIMARIES IN ACTION

	Subdivisions of Nongraded Primaries in Action					
	I	II	III	IV	V	VI
Agreement	.88	.98	.90	.90	.86	.90
Disagreement	.83	.97	.87	.90	.82	.87

Principal Interview Guide

Since the efficacy of a nongraded program could depend heavily on the direct actions taken to introduce and maintain these programs a series of interviews were scheduled with building principals to ascertain what had been done to achieve nongradedness in their schools. They, as educational leaders, could play a significant role in making the tenets of the nongraded school the guiding educational philosophy for their schools and staffs.

Two structured, in-depth interviews were arranged with each principal whose school participated in this project; one at the end of the first year of the study and one at the end of the final year of the study. This interval was selected to provide sufficient time for them to make those educational adjustments dictated by their commitments and any alterations in procedures deemed warranted by their experience with these new programs. Essentially, time for the exercise of leadership was being provided. If principals are significant influences in the nongrading process, this fact should become apparent over this period of time.

In developing the interview guide, two considerations were paramount; the nature of the administrative process and the nature of the nongraded program. The literature on administrative theory provided the dimensions for the leadership characteristics used. Here, the results of several critical studies on the nature of the tasks involved in administration are available and a reasonably stable description of this process emerges.[32] Differences, to be sure, can be noted in these descriptions, but they tend to be superficial rather than substantive. One author, for example, may describe one of the tasks of an administrator as "defining the purposes and objectives of the enterprise" while another may describe the same process as "setting goals". But when differences in phraseology are eliminated a reasonably consistent and compatible taxonomy for administration is forthcoming. In this study, the structure used is:

1. Involving People

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[32] Ronald F. Campbell and Russell T. Gregg (ed.), Administrative Behavior in Education (New York: Harper & Row, Publishing, 1957).

John A. Ramseyer, Lewis E. Harris, Millard Z. Pond, and Howard Wakefield, Factors Affecting Educational Administration (Columbus, Ohio: College of Education, Ohio State University, 1955).

2. Coordinating Administrative Structure and Function
    a. Making Policy
    b. Determining Role
3. Improving Educational Programs
    a. Setting Goals
    b. Appraising Programs

One must realize that any process does not take place in a void. Process must be performed on something. Process must be related to a function to be performed. In this instance the function to be performed is the institution, development, and maintenance of a nongraded program of education. So, some description of this function was needed, too.

The dimensions used to describe the nongraded school in the Education Opinion Inventory seemed reasonably adequate and were again used for the interview schedule. The factors included are: Individual Differences; Pupil Progress; Evaluation; Curriculum; Instruction; and Organization for Learning. When these dimensions are crossed with those of administrative function, a matrix for the interview schedule results. This matrix is presented in Figure 2.4.

The numerals entered in the cells of the matrix correspond to the numbers used for the questions in the interview schedule. Decimal notation was used to facilitate the identification of items and aid in the analysis. On first examination of the distribution of items within cells it appears that an unequal distribution of items within categories results. To a certain extent this is true and perfect symmetry is not claimed for the distribution. However, some of the disbalance is more apparent than real. In some categories, such as "Evaluation" and "Curriculum," it is clear that numerals are not sequential. Items were added to selected categories to provide a check on the consistency of the responses and so serve as a rough approximation of the validity of the answers received to the questions asked. Items calling for purely

Program Operation	Administrative Function				
	Involving People	Coordinating Administrative Structure and Function		Improving Educational Programs	
		Making Policy	Determining Role	Setting Goals	Appraising Programs
Individual Differences	6.3 7.3 6.31	6.1 7.1 6.11 7.11	6.2 7.2 6.21	6.4 7.4 6.41 7.41 6.42 7.42	6.5 7.5
Pupil Progress	13.3 14.3 15.3	13.1 14.1 13.11 13.12 15.1 15.11	13.2 14.2 15.2	13.4 14.4 13.41 14.41 13.42 14.42 15.4 15.41 15.42	13.5 15.5
Evaluation	3.3 11.3 3.31 12.3 20.3 12.31 12.32	3.1 11.1 11.11 12.1 20.1 12.12 12.13 12.14 12.15	11.2 11.21 12.2	3.4 11.4 3.41 11.41 3.42 11.42 12.4 20.4 12.41 20.41 12.42 20.42 12.43 12.44	3.5 11.5 3.51 12.5 20.5 12.51

Curriculum	8.3 8.31	16.3	8.1 8.11	16.1	8.2	16.2	8.4 8.41 8.42 8.43 8.44	16.4 16.41 16.42	8.5 8.51	16.5
	17.3 17.31		17.1 17.11	18.1	17.2		17.4 17.41 17.42 17.43	18.4 18.41 18.42 18.43 18.44	17.5 17.51	18.5
	21.3		21.1 21.11		21.2		21.4 21.41 21.42		21.5	
Instruction		9.3	4.1	9.1 9.11		9.2	4.4	9.4 9.41 9.42		9.5 9.51
	10.3	19.3	10.1 10.11 10.12	19.1 19.11	10.2 10.21	19.2 19.21 19.22 19.23 19.24	10.4 10.41 10.42	19.4 19.41 19.42 19.43	10.5 10.51	19.5 19.51
			22.1 22.11				22.4 22.41 22.42		22.5	
Organization for Learning	1.3 1.31	2.3	1.1 1.11	2.1		2.2	1.4 1.41 1.42 1.43	2.4 2.41	1.5 1.51	2.5 2.51 2.52
	5.3		5.1		5.2 5.21		5.4		5.5	

Figure 2.4. -- Matrix of the dimensions of administrative function and the operation of a nongraded program from the *Principal Interview Guide*.

factual information, such as the vertical and horizontal organization of classes, had no checks in the guide since comparable information could be secured from other sources, notably the Activity Logue.

Techniques similar to those used earlier for the analysis of item difficulty for the subdivisions of Nongraded Primaries in Action were utilized here, too. The results of these analyses are presented in Table 2.20.

The index of agreement for all of the subsections of the Principal Interview Guide are substantial and tend to hover about .80. In fact, no index number dips below .61. This high degree of consistency is not surprising when one considers the caliber of the respondents and the nature of the questions. They are all persons of integrity in responsible positions who furnished information about the activities and procedures used in administering their schools. The single area, "Setting Goals," where the index of agreement was consistently lower than any other is understandable. Since these analyses were performed on data gathered early in the project and schools were in the initial stages of transforming their graded schools into nongraded ones some ambiguity about the goals of the new organizational pattern might have been anticipated. All-in-all, however, consistency characterized the responses received and the Principal Interview Guide appears to yield a fairly accurate picture of what principals are doing to nongrade their schools.

Essentially, these interviews sought to ascertain (1) what was being done to achieve nongrading (making policies); (2) the people responsible for carrying out these policies (determining role); (3) who decided these were the policies to follow; (4) why these policies were selected (setting goals); and (5) determining the effectiveness of these policies (evaluation of program).

To illustrate the application of these notions to the interviews, an explanation of various sections of the guide follows.

Involving people. -- Generally, people are involved in policy formation so the benefits of group deliberation may be realized, understandings about the nature and

TABLE 2.20

INDEX OF AGREEMENT FOR RATINGS ON SELECTED SUBDIVISIONS OF THE PRINCIPAL INTERVIEW GUIDE

	Involving People	Coordinating Administrative Structure and Function		Improving Educational Programs	
		Making Policy	Determining Role	Setting Goals	Appraising Programs
Evaluation	.78 .82 .77 .85	.81 .76 .83		.72 .68 .73 .65 .71 .69 .74 .73 .69	.89 .91 .92 .90
Curriculum	.84 .88 .86 .79	.78 .83 .82 .77 .89 .74	.85 .77 .84	.63 .70 .66 .81 .65 .63 .74 .73 .72 .72 .66 .78	.92 .89 .94 .95 .91
Instruction		.85 .90 .86 .88		.61 .64 .71 .68	

need for the policy fostered, and the enhancement of smooth and consistent translation of policy into practice obtained. Clearly, under the provisions of this prescription, principals, teachers, and, in some instances, parents and even students should have direct involvement in policy formation. In reporting pupil progress, for example, the content of these reports and the procedures for reporting are not the only important considerations. The process by which policies governing reporting and the content of these reports were formulated may be equally important. It is one thing to decide that parent conferences will be used for reporting and that parents will be informed of their child's growth in relation to himself rather than issuing a quarterly "Traditional-type" report card with letter grades or percentages to designate his mastery of the work for the class. But it is also important to know how this process came into being. It is one thing to have this policy for reporting develop as an outgrowth of the deliberations of those directly influenced by the nongraded school and another to have it come to schools for implementation as a "central office" policy on reporting. Adherence to district policy because it is district policy seems different than following a policy which is an outgrowth and embodiment of one's professed beliefs. Prescriptiveness and conformity characterize the one and adaptability and flexibility the other. So, the success of nongrading may depend as heavily on how we decide what to do as much as what we do to become nongraded.

Policy making.-- The policies developed to realize the ends of the nongraded school may themselves portend its success. In organizing for instruction, for example, one school may group children of similar ability and/or achievement in a single class to narrow the instructional range. Another school may utilize cross-class or inter-age grouping while still another may use "planned heterogeneous" grouping in its efforts to become nongraded. Surely each of these grouping policies cannot be considered equally in harmony with the beliefs of the nongraded school. Some, as a matter of fact, are highly reminiscent of grouping procedures long associated with the graded school while others are but minor and almost imperceptible modifications in the structure presumably replaced by the introduction of nongrading.

Determining role. -- The participants in any enterprise must have unambiguous understandings of their roles in the enterprise if its ends are ever to be realized. Not all people can perform the same tasks so role-discrimination is an imperative of any successful enterprise. Schools, especially nongraded schools, are not exempt from this maxim. Since individual differences are pivotal to the nongraded school, role-definitions are essential for all must know who shall identify these differences and do something about them. Some schools have no definitive policies in this area but hopefully assume that teachers are meeting these ends in their daily work with children. In other cases overt efforts have been made to marshal and coordinate the school's educational resources in meeting its commitments to these differences. The librarian, the school psychologist, the music, art, and physical education teachers have been formed into a cohesive, auxiliary unit to assist teachers in not only assessing children's strengths and weaknesses but doing something actively about their findings. Essentially, then, the way in which the roles of people in a nongraded school are defined and related to its purposes may go a long way towards fulfilling its commitment to the individual differences found among children.

Setting goals. -- Acceptance of the tenets of the nongraded school brings with it acceptance of a set of educational goals. These are not specific and detailed, but directional. They are guides for the formation of goals in the specific areas of concern to a practicing nongraded school. The acceptance of individual differences, for example, is a generalized goal with specific implications for the goals to be reflected in the school's evaluation program. Operationally, then, schools must formulate specific procedures which are in harmony with the general goals of the nongraded school. Here, schools could rely almost exclusively on standardized test performance for student evaluation. But even within this domain distinctions bespeaking a school's true goals can emerge. One school could restrict its evaluation to assessments of a student's gains in grade equivalent scores in reading and arithmetic. Another school, using the same battery of tests, might mute or completely disregard grade equivalent scores and want the results of an item analysis of the student's test performance for its evaluation program. Here not only are the evaluation procedures different, but there seems to be a real difference in the goals the school has set through its evaluation program. A third school, in addition to evaluating a student's development in the academic realm, may have introduced a systematic procedure for the regular assessment of a child's social and emotional development. Each of these schools, through the procedures it has set for student evaluation, says something quite different about the goals it hopes to realize through nongrading. Some of these are, rather clearly, more in harmony with the goals of the nongraded school than others.

Appraising programs. -- The principles of nongrading require severe alterations in the established order and routines of the graded school. Understandably, schools accepting nongrading must plan, institute, and constantly modify their newly-developed programs and procedures to ascertain their effectiveness in meeting their new educational commitments. So, program appraisal seems an integral part of the nongrading process. Older curricula, for example, were patterned to conform to the beliefs of graded schools and schools becoming nongraded need to look hard and long at them. But schools, when they become nongraded, could easily and uncritically bring their time-honored curricula to the nongraded school without questioning its adequacy in content and sequence for its present educational purposes. Or, schools could rely heavily on intuition and consensus judgments in this process. It is possible, and some schools have done so, to develop procedures for continuous, full scale, critical appraisals of the type curricula required in a nongraded school. Surely differences in the amount and intensity of the appraisals undertaken are possible. Now, nongrading requires an adaptable and flexible curriculum. The precise nature of the modifications needed to bring the school's curriculum into harmony with the goals of the nongraded school are revealed by appraisal of the current curriculum offerings. So, the less we know about the adequacy of our present curriculum offering the more remote are the possibilities that it can be altered sufficiently to produce the desired harmony, and schools doing little or nothing to appraise their curriculums may be less adequately equipped to design the needed modifications than schools with a well-defined procedure for appraisal of its curriculum.

This, then, is illustrative of the procedures used in crossing the dimensions of the taxonomy of administration used with the dimensions of the program to which these administrative skills were to be applied. Obviously, some areas required far more questions than others to produce the information needed to appraise the role the principal had played in moving his school in the direction of a nongraded school.

Once the interview schedule was developed it had to be administered to the principals participating in the study. Each interview took approximately two hours. During the interview principal's answers to the questions asked were noted and each interview was tape recorded, too. Only one principal asked not to have the interview taped and the request respected.

Taping the interviews had two distinct advantages. First, it provided a means of guaranteeing the recording of complete information. Frequently, during the course of the interview, principals in responding to one question, would expand their answers and provide answers to questions yet to be asked. More commonly, however, while answering one question the principal would use the occasion to correct or modify his answer to a previous question. If time were taken during the interview to locate these questions and correct the responses already recorded or record the answers given to questions that were yet to be asked, it would prolong the interview and possibly unnerve the respondent. Immediately following the interview the tapes were played and the interview guide gone over to be sure that a complete and accurate recording of the principal's responses to the questions had been made.

Aside from this, taping the interviews provided another benefit. It furnished a means of checking on the reliability of the interview rater. Several months after the interview the tapes were replayed and the complete interview guide rescored. Comparisons could now be made between these two ratings to provide an estimate of the rater reliability for the interview. The results of these comparisons are presented in Table 2.21.

TABLE 2.21

CORRELATIONS COEFFICIENTS FOR SCORING AND RESCORING OF INITIAL ADMINISTRATION OF THE PRINCIPALS' INTERVIEW GUIDE

Involving People	Coordinating and Administering Structure & Function			Improving the Program of Instruction			Total
	Making Policy	Determining Role	Composite	Setting Goals	Appraising Program	Composite	
.700	.761	.577	.714	.663	.703	.732	.753

It is clear from Table 2.21 that considerable consistency was obtained between the two scorings of the initial administration of the Principals' Interview Guide. All of the coefficients are significant and fall within a restricted range (.577 to .761). In addition to the correlation coefficient for the entire instrument (.753) the correlations for all of the instrument's subdivisions are substantial, too.

Lastly, the internal consistency of the Guide was evaluated. Correlations for each of its subsections on both administrations were developed. These are presented in Table 2.22. Since an integrated act (administration) is evaluated, the obtained coefficients should be positive and substantial. They are. On the first administration all of the obtained coefficients were positive (.558 to .885) and significant, two at the .05 level and the remainder at the .01 level. Like results were obtained from the second administration. The coefficients ranged between .485 and .927 and this time all were significant at the .01 level. So, the Guide's internal consistency appears sufficiently high to warrant confidence in the results it yields.

TABLE 2.22

INTERCORRELATIONS FOR THE SUBSECTIONS OF THE PRINCIPALS' INTERVIEW GUIDE

Second Administration

	Involving People	Making Policy	Determining Role	Setting Goals	Appraising Program	Total Score
Involving People		**.651	*.711	*.485	**.741	**.811
Making Policy	**.645		**.762	**.920	**.744	*.927
Determining Role	**.696	*.558		.720	**.573	**.857
Setting Goals	**.638	**.702	**.823		*.699	**.738
Appraising Program	**.745	*.571	**.819	**.746		**.834
Total Score	**.814	**.766	**.885	**.840	**.769	

First Administration

* Significant at the .05 level
** Significant at the .01 level

Procedures

Throughout the previous sections of this chapter a rather extensive discussion of the procedures used for the selection of a population for the study and the selection and development of appraisal instruments was presented. A recapitulation of these discussions would be redundant and unwarranted. However, a schema for the procedures to be utilized in analyzing the data gathered for the study and testing its hypotheses seems appropriate at this point. It provides a convenient and concise summary of the many questions the study seeks to answer as well as a prologue and outline for the succeeding chapter.

HYPOTHESIS	PROCEDURES
I. GENERAL HYPOTHESES	
A. Do graded and nongraded schools differ in	
1. Organization Class Staff Student	Verbal description
2. Provisions for continuous pupil progress	Frequency counts - on significance of differences between percentages
3. Teachers'	
a) knowledge and acceptance of the principles of the nongraded school	Analysis of Variance
b) classroom performance	Analysis of Variance
4. Principals'	
a) knowledge and acceptance of the principles of the nongraded school	Analysis of Variance and Median Test
b) administrative performance	Significance of differences between percentages

HYPOTHESIS	PROCEDURES
1. GENERAL HYPOTHESES (continued)	
B. Do students from graded and nongraded schools differ in achievement and adjustment	Analysis of Variance
C. Are students' achievements and adjustments in graded and nongraded schools influenced by	
1. Demographic characteristics	" "
2. School placement (level or grade)	" "
3. Teachers'	
a) knowledge and acceptance of the principles of the nongraded school	" "
b) classroom performance	" "
c) demographic characteristics	" "
4. Principals'	
a) knowledge and acceptance of the principles of the nongraded school	" "
b) administrative performance	" "
c) demographic characteristics	" "
D. Is the continuous progress made by students influenced by	
1. Students'	
a) achievement	" "
b) adjustment	Frequency Distribution
c) demographic characteristics	" "
2. Teachers'	
a) knowledge and acceptance of the principles of the nongraded school	Correlation

HYPOTHESIS	PROCEDURES
I. GENERAL HYPOTHESES (continued)	
b) classroom performance	Correlation
c) demographic characteristics	"
II. TEACHER VARIABLES	
A. Is there a relation between a teacher's knowledge and acceptance of the principles of the nongraded school and her	
1. classroom performance	"
2. demographic characteristics	"
B. Is there a relation between a teacher's classroom performance and her demographic characteristics	"
III. PRINCIPAL VARIABLES	
Is there a relation between a principal's knowledge and acceptance of the principles of the nongraded school and his	
1. Administrative performance	"
2. Demographic characteristics	"
3. Teachers'	
a) knowledge and acceptance of the principles of the nongraded school	"
b) classroom performance	
IV. DURATION OF EFFECT	
Is the achievement and adjustment of students in the intermediate grades influenced by their	
1. Demographic characteristics	
2. Primary level achievement and adjustment	
3. The type of school organization at the	
a) primary level	

HYPOTHESIS PROCEDURES

IV. DURATION OF EFFECT (continued)

        b) intermediate level

    4. Continuous progress they have made

    5. Teachers'

        a) knowledge and acceptance of the principles of the nongraded school

        b) classroom performance

        c) demographic characteristics

    6. Principals'

        a) knowledge and acceptance of the principles of the nongraded school

        b) administrative performance

        c) demographic characteristics

With these procedures it is hoped that the questions raised for this study may be answered with a measure of confidence.

CHAPTER III

To present the study's findings, the "Procedure" format presented in Chapter II will be followed. To this end, this chapter has the following divisions: Comparisons of Graded and Nongraded Schools; Comparisons of Student Differences in Achievement and Adjustment in Graded and Nongraded Schools; Factors Influencing Student Achievement and Adjustment in Graded and Nongraded Schools; Factors Influencing Continuous Pupil Progress; Teacher Factors; Principal Factors; The Duration of Effect of Nongrading on Students in Graded and Nongraded Schools.

COMPARISONS OF GRADED AND NONGRADED SCHOOLS

Organizational Differences

Observable organizational differences exist between graded and nongraded schools. Graded schools tend to cling to the one-teacher-to-one-class for one-year tradition. Nongraded schools depart from this custom in: (1) class organization, (2) staffing practices, and/or (3) student grouping.

	Class Organization	Criteria for Class Grouping	Staff Utilization
A.	Self-contained	Homogeneous by reading achievement	Yearly assignment
B.	Self-contained	Heterogeneous	Teacher cycling
C.	Cross-class and/or cross-class-grade	Homogeneous by achievement in the specific subject (reading or arithmetic)	Flexible utilization

Class

Class organization in nongraded schools is generally, though not exclusively, of two types: interage grouping or cross-class grouping. In the former, children of different ages and years of schooling receive instruction together in all or selected curricula areas from one or more teachers. In some schools nongrading is interage grouping in self-contained classes. In others, it is interage grouping in specific areas, notably reading and arithmetic. Cross-class grouping resembles the latter except that children of the same age and from the same year of school are grouped together. It must be made very clear that all schools purporting to have nongraded instructional programs have not abandoned the self-contained classroom. Indeed, organizational practice in them is virtually identical with that found in the graded school.

Staff

Staffing practices are inextricably associated with organizational practices. Uni-level or multi-level grouping for instruction in separate curriculum areas necessitates flexible utilization of teachers since they are responsible for the learning of children of the same or different ages in one or more subjects. Teacher cycling is another staffing practice. Teachers are assigned to classes, usually self-contained, for two or more years. Many schools begin by assigning one teacher to one class for all of its education in the school's primary division. In practice, teacher assignment rarely lasts three years, because teachers insist this is too long for one teacher to stay with one class. Of course, the more conventional annual-assignment-of-teachers-to-classes is still prevalant in nongraded schools.

Students

Procedures for assigning students to classes is the next feature to consider. Where interage and cross-class grouping is practiced, the child's intellectual potential or past academic performance in reading and/or arithmetic are the major determiners of the group to which he will be assigned. Commonly, in nongraded schools with self-contained classes for children of a similar age some procedure to "reduce the instructional range" is employed. Clearly, these practices are equally applicable to graded schools.

Commentary

Obviously, differences can be found between graded and nongraded schools. But these are not novel and pervasive. They are scarcely more than badly camouflaged versions of homogeneous grouping and departmentalization of instruction. They are not unique to nongrading. As a matter of fact, most of them originated and failed in graded schools. If nongrading does not rise above these heights, the central point of the entire movement is missed.

Becoming "nongraded" is a conscious, deliberate choice among alternatives. In the process it is easy to become mesmerized by its form and oblivious to its substance. Crusades against the obvious but benign manifestations of the graded school are easily launched while its essence continues under the sanction of a few superficial administrative alterations in the school's operation. Doors with carefully obliterated grade labels are frequently little more than protective shields for the graded instruction dispensed behind them. Graded schools are more than a loose confederation of self-contained classrooms. They are information vending institutions. Ignoring this is ignoring their essence and the changes which must be made. Alterations which do not get at this are not getting at the heart of the problem. Modifications in the superstructure of the graded school may accelerate or retard, enhance or impede the process of nongrading, but are not in and of themselves the essential difference between graded and nongraded instruction. The essential difference between graded and nongraded instruction is a rejection of the belief that the assimilation of a specified and delimited body of information by children of a comparable age is right and good, and proper.

These efforts see nongrading as organization. It is not. Proponents of nongraded schools do not react against the organizational patterns of graded schools per se. They object to the fortress-like instructional programs these arrangements are calculated to foster. Nongrading is more than grouping. It is a redefinition of teaching. It demands differentiated instruction for children according to their learning needs rather than rigid conformity to a single instructional timetable for all, differences notwithstanding.

Now, grouping is a purposeful rather than a random or capricious act. In interage and multi-level grouping the purpose is teacher-centered, not instruction-centered. They are calculated to demonstrate to teachers beyond the shadow of a rational doubt that children of like ages are probably alike in little else. But even if this learning takes place, it is a feeble guarantee that significant alterations in instructional practices will be instituted to provide for the differences observed among children. Ultimately, teachers must rely on their own initiative, a variable, when coping with the individual differences. Neither interage nor multi-level grouping provided her with material assistance towards this end. They simply do not tell her what to do about what she observes nor how to do it. Catch-as-catch-can procedures such as these hardly qualify as thoughtful and systematic plans for nongrading instructional practices.

Teacher cycling is hardly more nongraded than interage or multi-level grouping for it too is a staff-instructional device. It teaches teachers a truism: Children of like ages mature and learn at uneven and unequal rates. Once the validity of this contention is uncontestably established, instructionally, what do teachers do about it? How is this learning translated into meaningful alterations in instructional practice? What pedagogical alternatives are provided? Once again teachers must rely on their own resources to do whatever they are moved to do about whatever it is they believe they have observed. Teacher cycling is not a solution to an instructional dilemma, it is a technique for marqueeing it.

Like criticisms could legitimately be offered about many other administrative alterations in the operation of schools presumed to produce nongraded instruction. It is all but inconceivable that people can honestly believe that the differences between graded and nongraded instructional programs lie in such "flick-of the wrist" solutions. If nongrading is to take place, techniques for freeing access to learning must develop. The core of these techniques have to be student, not teacher, centered. They must provide students with multiple and direct routes to the learning needed as need, not as the teacher can provide them. Alterations in grouping procedures and teacher utilization practices are superficial and ineffectual procedures for realizing this end. If schools will nongrade their instructional program a direct assault must be made on the obstacles standing between a child's readiness to learn what he can when he can. Essentially, nongrading is all about instruction not organization.

The central commentaries offered on class organization and staff utilization practices in nongraded schools are equally pertinent to the practices used when assigning pupils to classes. For rather than feature individual differences these plans attempt to mask them by grouping children with similar attainments or abilities together. Again, these are further attempts at solving instructional problems through administrative practices. It is hoped, through organizational arrangements, to constrict the influence of individual differences on learning. To this end, the child continues to be the variable in the learning process while the curriculum remains unalterably constant. The falacies and shortcomings of these practices are well-established and perpetuation of them is inexcusable. But more than this, the incongruity of accepting such administrative schemes as nongraded instruction should be apparent to all.

Nongrading is dedicated to the identification of individual differences and the creation of instructional practices which minister to them. Homogeneous grouping by any other name, seeks similarities and courts undifferentiated instruction. The former values custom-tailored teaching, the latter mass-produced instruction. It is senseless to accentuate *individual* differences as the foundation for learning and institute administrative practices which facilitates *group* instruction. Attesting to individual differences and endorsing the desirability of education consonant with them are simply hollow verbalisms until life is breathed into detailed plans to make them an instructional reality rather than an educational apparition.

Finally, flawless models of either the traditional graded or ideal nongraded school are so rare that they are display items. There is probably no such thing as an unadulterated graded or nongraded school. Most schools are "more-or-less" graded or nongraded, a little of each, hybrids, for gradedness and nongradedness are not single, monolithic concepts. They are mosaics, an infinite series of an infinite series of procedures and practices instituted to bring its supporting educational beliefs to the instructional process. What are perceived to be the best and most workable features of each of these contending positions have been adopted by most contemporary schools. It is delusion to assume that prototypes of either program exist in sufficient quantity to permit flawless study and unfaltering answers to the basic questions raised about the relative merits of each. So for lack of subjects, the available research on the nongraded school must be considered deficient and the answers it yields imperfect. Perhaps priorities need to be ordered and research centered on identifying the salient differences in procedures and practices between graded and nongraded schools before assessing the impact they have on children, their learning and their adjustment.

Pupil Progress

A major deficiency of early graded schools was their inability to accommodate individual differences and permit children to learn at appropriate rates. Their promotion practices, and the instructional problems they created, concerned many educators. Nongraded schools advocate letting children advance through the instructional program at their own rates.

Logically, this is appealing, especially if one believes each individual has a personal and innate timetable for growth and development. However, the imprecision of this concept makes it difficult to observe in practice. The literature on the nongraded school provides some help. Discussions of the basic intention of continuous pupil progress are usually followed by quick translations of these principals into educational practice. Most children, the discussion goes, will complete the primary in the anticipated time. Some will not. Some, because they mature and learn rapidly, will complete the primary sooner. Others, because they develop and learn slowly, will take longer.

This provides the foundations for a definition of continuous progress which permits study of differences between graded and nongraded schools. The definition has two major divisions, normal pupil progress and non-normal pupil progress. Normal progress finds children completing the primary in the anticipated time. Non-normal progress finds children completing the primary in something other than the anticipated time. This could be longer or shorter than anticipated. So, non-normal progress may be of one or two types - accelerated or decelerated. Pupil progress is accelerated when the primary is completed in less than the allotted time. It is decelerated when more than the anticipated time is required to complete it. With these definitions, the differences in graded and nongraded schools in providing for continuous pupil progress were studied.

Now several issues must be faced squarely. Legitimately, the advocates of continuous pupil progress may complain that this hardly represents the expansiveness of the concept. They contend that innumerable daily adjustments are made so children will constantly receive appropriate instruction. Educationally, this is commendable, but the very imprecision of the language limits its research usefulness. What is observed? Operationally, what do you look for? Inevitably, accurate and detailed records of these alleged adjustments are seldom kept by teachers. In their absence, study is impossible. Furthermore, if these adjustments are being made, it is their ultimate and cumulative effectiveness which interests educators and which is measurable. If instruction is truly adjusted to the needs of the individual, their aggregate should be manifest. Additionally, there is justification to the criticism that as defined and studied, continuous progress is scarcely more than a euphemism for promotion, acceleration and retention. Remember, continuous progress was a modification for the promotion policies of the graded school, not necessarily an abandonment of them, so these similarities are not surprising.

The data needed for the study came from the Metropolitan Achievement Test. It recommended separate levels for each year of the primary and each year of the study the names of the children taking these levels were recorded and compared with the levels taken in subsequent years. Children taking the same level of the test in consecutive years were classified as having decelerated progress. Normal progress occurred when children took the three levels of the test in the prescribed order. Finally, accelerated progress occurred when children skipped a level of the test. One other point has to be made here. The totals reported are the aggregates for the three concurrent years of the primary, not a report of the progress children made from the first year of the primary through the third. With these understandings clearly in mind the data on continuous pupil progress reported in Tables 3.1 to 3.4 can be discussed.

TABLE 3.1

PERCENTAGE OF CHILDREN IN GRADED AND NONGRADED PRIMARIES MAKING NORMAL AND NON-NORMAL PROGRESS[a]

Type of Progress	1964-65					1965-66				
	Control	Experimental				Control	Experimental			
	D	Total	A	B	C	D	Total	A	B	C
	Total Primary									
Normal	95.4	96.2	95.8	98.3	95.6	92.7	97.0	96.4	98.2	97.0
Non-Normal										
Accelerated	.0	.4	1.2	.0	.0	.0	.0	.0	.0	.1
Decelerated	4.6	3.4	3.0	1.7	4.4	7.3	3.0	3.6	1.8	2.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N=	(1076)	(3429)	(1251)	(603)	(1575)	(849)	(3049)[b]	(1073)[b]	(512)	(1464)
	First Year									
Normal	92.2	95.7	94.3	99.4	95.6	90.8	98.7	100.0	99.4	97.6
Non-Normal										
Accelerated	.0	1.3	3.6	.0	.0	.0	.0	.0	.0	.0
Decelerated	7.8	3.0	2.1	.6	4.4	9.2	1.3	.0	.6	2.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N=	(282)	(1066)	(388)	(161)	(517)	(304)	(1013)[b]	(326)[b]	(177)	(510)

TABLE 3.1 (continued)

Type of Progress	1964-1965					1965-66				
	Control	Experimental				Control	Experimental			
	D	Total	A	B	C	D	Total	A	B	C
Second Year										
Normal	95.0	97.2	97.9	98.6	96.0	93.3	94.8	90.4	98.5	96.8
Non-Normal										
Accelerated	.0	.1	.2	.0	.0	.0	.1	.0	.0	.2
Decelerated	5.0	2.7	1.9	1.4	4.0	6.7	5.1	9.6	1.5	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N=	(360)	(1170)	(426)	(215)	(529)	(240)	(945)	(335)	(136)	(474)
Third Year										
Normal	97.7	95.6	95.2	97.4	95.3	94.1	97.3	98.3	97.0	96.5
Non-Normal										
Accelerated	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Decelerated	2.3	4.4	4.8	2.6	4.7	5.9	2.7	1.7	3.0	3.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N=	(434)	(1193)	(437)	(227)	(529)	(305)	(1091)	(412)	(199)	(480)

[a] Type of progress was determine by a comparison of the achievement test batteries administered to the child each November of the study.

[b] Does not include district 02 grade 1 1965-66 because of incomplete data.

A = Self-contained class, students homogeneously grouped for reading, teachers yearly assigned to class.

B = Self-contained class, students heterogeneously assigned to classes, teacher cycling.

C = Cross class and/or cross-class-grade classes; homogeneous by achievement in the subject; teachers assigned to teach specific subjects.

First the preponderence of children in graded and nongraded school progress normally through the primary years. Otherwise, their progress is decelerated. Acceleration in the primary is so infrequent that it is virtually nonexisting. This is equally true in graded and nongraded schools.

While graded and nongraded schools are similar when providing for continuous pupil progress, apparently, a consistently greater percentage of the children in nongraded schools progress normally through the primary. But, for certitude, the significance of these differences were tested. (Table 3.2) Since, practically speaking, deceleration is the correlary of normal progress, a lesser percentage of children in nongraded primaries spend more than the anticipated number of years in the primaries, and it was not necessary to test these differences separately for significance.

A pale and unstable relation apparently exists between program-type and the provisions made for continuous pupil progress for fewer than half of the significant differences found for the initial test period were significant on follow-up study. Furthermore, the most durable of these involved graded school programs where, in all instances, the percentages of children making normal progress in these programs was conspicuously lower than that for nongraded programs. Beyond this, the differences in the provisions made for continuous pupil progress among the three types of nongraded programs in this study are virtually imperceptible. B-type programs (teacher cycling, self contained classes, and heterogeneous grouping) had a somewhat greater percentage of children with normal progress than other types of nongraded programs, but these differences were far from consistantly significant. Conversely, the smallest differences occurred with C-type programs (cross-class and/or cross-level grouping, flexible utilization of teachers and homogeneous grouping). They, of all of the nongraded

TABLE 3.2

SIGNIFICANCE OF THE DIFFERENCES BETWEEN PERCENTAGES OF CHILDREN MAKING NORMAL PROGRESS THROUGH THE PRIMARY IN GRADED AND NONGRADED SCHOOLS

1964-1965							1965-1966					
A		B		C			A		B		C	
Cr	Df	Cr	Df	Cr	Df		Cr	Df	Cr	Df	Cr	Df
.47	2325	3.08**	1677	.24	2649	D	3.62**	1920	4.41**	1359	4.77**	2311
		2.79**	1852	.26	2824	A			1.96	1583	.84	2535
				3.01**	2176	B					1.44	1974
						TOTAL PRIMARY						
1.08	668	3.29**	441	1.99*	797	D	5.60**	628	3.82**	479	4.33**	812
		2.71**	547	.89	903	A			1.40	501	2.82**	834
				2.29*	676	B					1.50	685
						FIRST YEAR						
2.23*	784	1.82	494	.71	887	D	1.24	573	2.26*	374	2.16*	712
		.52	560	1.67	953	A			3.07**	469	3.82**	807
				1.48	663	B					1.06	608
						SECOND YEAR						
1.99*	869	.24	659	1.98*	961	D	3.03**	715	1.50	502	1.60	783
		1.36	662	.07	964	A			1.04	609	1.66	890
				1.34	754	B					.33	677
						THIRD YEAR						

* = .05%
**= .01%

programs studied, are most like the graded school in the provisions made for continuous pupil progress.

Some patterning emerges from the study of the provisions made for continuous pupil progress by year level of school. Apparently, as children progress through the school program increasing percentages of them complete the curriculum for the year of school in a school year. Noticeable exceptions to this pattern occur in the provisions made for continuous pupil progress in graded schools.

While they have lower percentages of students making normal progress at each primary level, these differences are greatest in the first year of school. This reflects the beliefs of both the graded and nongraded schools about child development and learning. Later school success, according to the beliefs of the graded school, is predicated on a solid, early preparation and the child's progress through school is most profitably delayed during the early school years so mastery of prerequisite skills for later learning can be insured. Nongraded schools, on the other hand, believe initial differences in school success are manifestations of differentiated developmental patterns and they delay decelerating progress to be sure the learner is not simply a "slow starter" rather than a slow learner.

To ascertain if experience with nongrading altered the provisions made by schools in providing for continuous student progress, the percentages of children having normal progress for each of the program types for the first year of the study was tested with the percentages for similar data for the second year of the study. As before, this was done for each year level of the primary as well as for the total primary. These results are presented in Table 3.3.

TABLE 3.3

SIGNIFICANCE OF THE DIFFERENCES IN THE PERCENTAGES OF CHILDREN MAKING NORMAL PROGRESS IN 1964 AND 1965

	CONTROL		EXPERIMENTAL					
	D		A		B		C	
	Cr	Df	Cr	Df	Cr	Df	Cr	Df
TOTAL PRIMARY	2.52*	1923	.74	2322	.13	1113	2.04*	3037
FIRST YEAR	.61	584	4.38**	712	0.00	336	1.77	1025
SECOND YEAR	.88	598	4.54**	759	.08	349	.68	1001
THIRD YEAR	2.52*	737	2.53*	847	.25	424	.96	1007

* = .05%
**= .01%

Generally, the differences found between the percentages of children making continuous progress from year-to-year of the study were small and insignificant regardless of program type. A-type nongraded programs appear exempt from this conclusion since the percentages of children making normal progress rise and fall at each instructional level for each year of the study almost at will. With this exception, the data on continuous pupil progress might generally be regarded as a reasonably consistant picture of the practices of the schools participating in this study in providing for the continuous progress of the children.

With the above data, one additional question about the provisions schools make for the continuous progress of students through their instructional program was raised. Assuming time is needed to develop the routines and procedures that operationalize the ideals of the nongraded school in the school's instructional program, correlations between the length of time the school has been nongraded, age of the nongraded program, and the percentage of children making normal progress were run. For the latter, the percentage of children with normal progress for the total primary was used rather than the separate percentages for each year because it was believed this was more representative of the school's practice in providing for the continuous progress of students through the primary than the percentages for any single year of the primary.

The results, however, scarcely support the above assumption for the correlational coefficient, .329, is low and statistically insignificant. This, of course, might have been anticipated since there is virtually no difference in the percentages of children progressing normally through the primary regardless of the age of the nongraded program and so one can look for few marked changes in the provisions schools make for continuous pupil progress as they become more veteran with nongrading.

Teacher Difference

Differences between teachers from graded and nongraded schools were studied, too. Specifically, teacher differences in three areas were examined: knowledge of the principles of the nongraded school, acceptance of these principles and, lastly, differences in classroom performance. A report of our findings in each of these three areas follows.

Teacher differences in Knowledge of the Principles of the Nongraded School

Examination of differences in knowledge of the tenets of nongrading by teachers from graded and nongraded classes was undertaken with the Education Opinion

TABLE 3.4

AGE OF THE NONGRADED PROGRAM AND THE PERCENT OF CHILDREN IN THE TOTAL PRIMARY WITH NORMAL PROGRESS IN JUNE 1965 AND JUNE 1966 FOR EACH OF THE NONGRADED PROJECT SCHOOLS

School #	Age of the Program						
	One Year	Two Years	Three Years	Four Years	Five Years	Six Years	Seven Years
080						97.8	98.3
060					97.4	95.8	
021-2			92.0[a]	96.7[a]			
032			92.8	97.9			
070			98.7	97.5			
111		98.1	100.0				
040	94.9	99.5					
051	89.5	95.6					r=.329
120	97.1	96.1					
Average	93.8	97.3	95.9	97.4	97.4	96.8	98.3

[a] This does not include Grade 1 progressions as incomplete data was available for 65-66

Inventory furnishing the needed data. It yields a total score and five partial scores for the areas particular to nongrading: Individual Differences; Pupil Evaluation and Progress; Curriculum; Organization for Instruction; and Instructional Methods. Three administrations of the Inventory were arranged to establish the stability of the findings. Finally, replies of teachers from nongraded schools were analyzed according to program type. Now, confirmed inferences about the differences in teacher knowledge of the principles of nongrading could be made. The influence of various types of nongraded programs would, furthermore, be reflected in this analysis. Before commencing this analysis the data were examined for differences in the techniques used by teachers in becoming knowledgeable about nongrading and the extensiveness of nongrading within the school was used to refine this information.

	No Answer	Reading Experience	Reading Hunch Experience	Reading	Reading and Hunch	Experience	Experience and Hunch	Hunch
Graded	1.18%	24.31%	2.34%	6.21%	1.19%	45.87%	5.73%	11.98%
Nongraded	1.27	23.83	2.29	5.98	1.21	46.31	6.06	12.17
Both	1.23	24.44	2.26	6.06	1.25	46.62	6.07	12.07

Clearly, experience teaches teachers, both from graded and nongraded classes, what they know about the nongraded school. Its literature and research are less influential in developing with them understandings of its rationale. The efficacy of the lessons taught must be questioned. Obviously they are as comprehensive and valid as the experience producing them. Surely, some are so restrictive, provincial and graded-school centered that they teach little about the nongraded school. Assumedly, learnings about the new and the innovative - especially when the new and the innovative is the antithesis of the established order - is best taught through study of it. Here the recorded experiences of others familiar with the innovation may be eminently better teachers than one's own experiences. Perhaps the development of

TABLE 3.5

KNOWLEDGE OF THE PRINCIPLES OF THE NONGRADED SCHOOL BY TEACHERS FROM GRADED AND NONGRADED CLASSES

	FIRST ADMINISTRATION			SECOND ADMINISTRATION			THIRD ADMINISTRATION		
	SS	df	MS	SS	df	MS	SS	df	MS
INDIVIDUAL DIFFERENCES									
Grand Totals	366.05	22		466.24	25		474.19	26	
Grand Mean	354.40	1		447.75	1		456.12	1	
Treatments	.18	3	.061	2.26	3	.753	.03	3	.010
Error	11.46	18	.637	16.24	21	.773	18.04	22	.821
	F = .095			F = .974			F = .012		
PUPIL EVALUATION AND PROGRESS									
Grand Totals	411.88	22		500.95	25		529.47	26	
Grand Mean	389.76	1		481.36	1		511.31	1	
Treatments	.67	3	.223	.43	3	.143	.30	3	.099
Error	21.45	18	1.191	19.16	21	.912	17.86	22	.812
	F = .187			F = .157			F = .122		
CURRICULUM									
Grand Totals	416.79	22		489.25	25		554.90	26	
Grand Mean	409.36	1		457.10	1		526.50	1	
Treatments	.86	3	.286	3.22	3	1.072	.51	3	.170
Error	6.57	18	.365	29.55	21	1.407	27.89	22	1.268
	F = .783			F = .762			F = .134		

TABLE 3.5 (continued)

ORGANIZATION FOR INSTRUCTION

Grand Totals	355.20	22		409.07	25		476.55	26	
Grand Mean	326.86	1		380.25	1		456.12	1	
Treatments	1.25	3	.418	.45	3	.149	.61	3	.203
Error	27.08	18	1.504	28.37	21	1.351	19.82	22	.901
	F = .278			F = .110			F = .225		

INSTRUCTIONAL METHODS

Grand Totals	398.32	22		436.19	25		476.41	26	
Grand Mean	279.72	1		416.98	1		464.54	1	
Treatments	1.09	3	.363	2.91	3	.969	1.08	3	.359
Error	17.50	18	.972	16.31	21	.776	10.79	22	.491
	F = .374			F =1.247			F = .732		

TOTAL SCORE ON EDUCATION OPINION INVENTORY

Grand Totals	392.95	22		392.84	25		505.02	26	
Grand Mean	378.89	1		377.91	1		492.85	1	
Treatments	.73	3	.244	.75	3	.251	.08	3	.027
Error	13.32	18	.740	14.17	21	.675	12.08	22	.549
	F = .330			F = .372			F ÷ .049		

truly nongraded schools has been stunted for want of accurate understandings of what genuine nongrading is and what it involves. If true, perhaps the literature in the field must be put to greater use so penetrating understandings about authentic nongrading can develop.

At any rate, it is clear that there is no knowledge gap between teachers of graded and nongraded schools on the principles of nongrading. For consistency, however, these data too were tested for significance of differences. This served only to confirm the obvious; there are no statistically significant differences in the knowledge teachers of graded and nongraded classes have regarding the principles of the nongraded school. All of the F's are virtually identical, zero, and insignificant. So, clearly, knowledge differences do not exist.

Teacher Differences in Acceptance of the Principles of the Nongraded School

Differences in teachers' acceptance of the supporting beliefs of the nongraded school were also tested. To supply the needed data, the Education Opinion Inventory was used in precisely the same manner as it was to furnish the data needed for analysis of differences in teachers' knowledge of the tenets of the nongraded school.

Obviously, differences are virtually nonexistent and teachers from graded and nongraded classes are about equally accepting of the principles of the nongraded school. Furthermore, the influence of the various nongraded program-types operative in the schools studied is essentially nil. The sole significant difference found, Instructional Methods, occurred only once - on initial administration. Lacking recurrence, it too was considered a chance and insignificant difference.

The techniques employed in introducing teachers to nongrading must be questioned since they do little to alter their basic attitudes about it. Presumably, the why and wherefores of nongraded instruction are unique and command support. If so, the inservice programs developed for this purpose fall considerably short of their

TABLE 3.6

ACCEPTANCE OF THE PRINCIPLES OF THE NONGRADED SCHOOL BY TEACHERS FROM GRADED AND NONGRADED CLASSES

	FIRST ADMINISTRATION			SECOND ADMINISTRATION			THIRD ADMINISTRATION		
	SS	df	MS	SS	df	MS	SS	df	MS
INDIVIDUAL DIFFERENCES									
Grand Total	34,000.00	174		32,526.00	145		30,824.00	145	
Grand Mean	32,773.20	1		31,524.40	1		29,494.00	1	
Treatments	54.10	3	18.03	37.90	3	12.63		3	30.91
Error	1,172.65	170	6.90	963.66	141	6.83	1,237.30	141	8.77
	F = 2.614			F = 1.848			F = 3.523		
PUPIL EVALUATION AND PROGRESS									
Grand Totals	44,128.00	174		25,818.00	145		38,873.00	145	
Grand Mean	42,919.50	1		25,054.00	1		37,472.80	1	
Treatments	117.01	3	39.00	32.85	3	10.95	182.95	3	60.74
Error	1,491.45	170	8.77	731.11	141	5.18	1,217.95	141	8.64
	F = 4.446			F = 2.111			F = 7.031		
CURRICULUM									
Grand Totals	24,799.00	174		15,210.00	145		21,252.00	145	
Grand Mean	23,846.90	1		14,741.00	1		20,402.80	1	
Treatments	51.41	3	17.14	22.47	3	7.49	95.69	3	3.46
Error	900.64	170	5.30	446.54	141	3.17	753.55	141	2.89
	F = 3.235			F = 2.365			F = 5.969		

TABLE 3.6 (continued)

	FIRST ADMINISTRATION			SECOND ADMINISTRATION			THIRD ADMINISTRATION		
	SS	df	MS	SS	df	MS	SS	df	MS
ORGANIZATION FOR INSTRUCTION									
Grand Totals	21,563.00	174		18,231.00	145		19,240.00	145	
Grand Mean	20,900.30	1		17,854.40	1		18,821.40	1	
Treatments	5.82	3	1.94	14.34	3	4.78	10.37	3	3.46
Error	656.90	170	3.86	362.30	141	2.57	408.22	141	2.89
	F = .502			F = 1.860			F = 1.190		
INSTRUCTIONAL METHODS									
Grand Totals	58,444.00	174		53,419.00	145		52,417.00	145	
Grand Mean	56,232.10	1		51,890.00	1		50,536.90	1	
Treatments	307.37	3	102.46	122.87	3	40.95	136.20	3	45.40
Error	1,904.53	170	11.20	1,406.14	141	9.97	1,743.91	141	12.37
	F = 9.145*			F = 4.107			F = 3.671		
TOTAL SCORE ON EDUCATION OPINION INVENTORY									
Grand Totals	871,586.00	174		680,426.00	145		773,960.00	145	
Grand Mean	852,600.00	1		670,208.00	1		757,162.00	1	
Treatments	1,912.24	3	637.41	780.90	3	260.30	1,812.11	2	604.04
Error	17,073.80	170	100.43	9,437.07	141	66.93	14,985.90	141	106.28
	F = 6.346			F = 3.890			F = 5.683		

* Significant at .05% level

intended goals for the teachers from these programs are no more accepting of the teachings of the nongraded school than their colleagues in graded schools.

Teacher Differences in Classroom Performance

Differences in the classroom performance of teachers in graded and nongraded schools were studied next. Standardized observations of instruction in reading and arithmetic were made by trained observers in the fall and spring for two years. Four observations were made in all. Nongraded Primaries in Action supplied data on instructional practices in six areas:

1. Identifying Individual Differences
2. Pacing Instruction
3. Materials of Instruction Available
4. Library Services
5. Adjusting Learning Time
6. Class Organization

These data permit analysis to be performed similar to that done with teachers knowledge and acceptance of the principles of the nongraded school. For each year of the study, instructional differences among teachers from graded classes and nongraded classes in each of the three types of nongraded programs identified were undertaken. The results of these analyses are found in Table 3.7.

TABLE 3.7
ANALYSIS OF DIFFERENCES IN INSTRUCTIONAL PRACTICES IN GRADED AND NONGRADED CLASSES

	1964 - 1965 Observations			1965 - 1966 Observations		
	SS	df	MS	SS	df	MS
Grand Total	36,394.50	196		28,256.00	210	
Grand Mean	34,436.80	1		26,297.60	1	
Treatments	350.91	3	116.97	438.36	3	146.12
Error	1,606.83 F= 13.98*	192	8.37	1,520.02 F= 19.80*	206	7.39

The obtained F's for the first (13.98) and second (19.80) year were statistically significant at the .05% level so additional analysis was needed. The significance in both instances was attributable to magnitude of the differences between the classroom performance of teachers from the graded classes and that of teachers from one of the three types of nongraded programs. For the first year, teachers from A-type program were involved, (self-contained class; homogeneous grouping of students by reading achievement; and annual assignment of teachers) while for the second year it was teachers from B-type program (self-contained classes; heterogeneous grouping of children; teacher cycling). The instability of the program-type involved makes it difficult to regard these differences as genuine. Clearly their only commonality is the use of the self-contained classroom. But, this too, is found in the graded schools. At best the obtained differences must be looked on as spurious and disregarded. So, teacher classroom performance like teacher knowledge and teacher acceptance of the principles of the nongraded school, show no differences.

Next, studies of instructional differences in graded and nongraded classes for each of the six areas measured by Nongraded Primaries in Action were made for reading and arithmetic by year level of the primary for the fall and spring observations for both years studied. For convenience, ease of reading and economy of space, Table 3.8 is a report of differences found to be statistically significant, rather than the more conventional presentation of means, s.d., etc. The number of comparisons involved would seem to justify this approach. Of the 168 comparisons made, better than 80% of the differences were statistically insignificant and those found to be significant could be chance occurrences. Now, of the 32 statistically significant differences found, only one favored instructional practice in the graded school. On all others, the instructional practices of teachers in nongraded classes were more in keeping with the ideals of the nongraded school instruction than those of teachers from graded classes. These differences, furthermore, are nearly evenly divided between reading and arithmetic making it untenable to maintain that instruction in reading is any more "nongraded"

TABLE 3.8

DIFFERENCES IN INSTRUCTIONAL PRACTICES IN GRADED AND NONGRADED CLASSES BY CLASS LEVEL AND AREA OF INSTRUCTION

		1964 - 1965								1965 - 1966								SUMMARY			
		FALL				SPRING				FALL				SPRING				NG		G	
		Read.		Arith.		Read.		Arith.		Read.		Arith.		Read.		Arith.					
		NG	G	NG	G	NG	G	NG	G	NG	G	NG	G	NG	G	NG	G	R	A	R	A
Iden. Indiv. <Diffs.	Year 1					**										*		1	1	0	0
	Year 2	**		***		*										**		2	2	0	0
	Year 3			*						**				*				2	1	0	0
Pac. Inst.	Year 1			*														0	1	0	0
	Year 2															*		0	1	0	0
	Year 3			**						*								1	1	0	0
Mats. of Instr. Avail.	Year 1					**										*		1	1	0	0
	Year 2															*		0	1	0	0
	Year 3							*										0	1	0	0
Lib. Servs.	Year 1					**												1	0	0	0
	Year 2					***		*										1	1	0	0
	Year 3							*										1	0	0	0
Adj. Learn. Time	Year 1																	0	0	0	0
	Year 2																	0	0	0	0
	Year 3													*			**	1	0	0	1
Class-room Org.	Year 1					**												1	0	0	0
	Year 2	*								*								2	0	0	0
	Year 3																	0	0	0	0
Totals	Year 1					***												1	0	0	0
	Year 2					**										**		1	1	0	0
	Year 3			**				*						**				1	2	0	0
Sum. of Diffs.	Year 1	0	0	1	0	5	0	0	0	0	0	0	0	0	0	2	0	17	14	0	1
	Year 2	2	0	1	0	3	0	1	0	1	0	0	0	0	0	4	0				
	Year 3	0	0	3	0	0	0	3	0	2	0	0	0	3	0	0	1				
	Yrs. 1-3	2	0	5	0	0	0	4	0	3	0	0	0	3	0	6	1				

than instruction in arithmetic. Generally, too, they were equally distributed through all subsections of Nongraded Primaries in Action. The strongest differences found were in identifying individual differences. Here teachers in nongraded classes differ most from teachers in graded schools. This is true for both reading and arithmetic at all year levels of the primary. The only other differentiation worth mentioning occurs in Pacing Instruction. Here the discrimination made in arithmetic instruction is more apparent than that made in reading. Generally, no single year level of the primary can be singled out where instruction is most nongraded than any other. At best, however, these are colorless impressions based on minimal differences and not steadfast conclusions coming from many stark and undeniable differences in instructional practices in graded and nongraded schools.

Principal Differences

Assessments of differences between graded and nongraded schools would be incomplete without comparisons of their principals for as they go, so goes the school's instructional program. As the school's instructional leaders, they have enormous influence over the direction and dimensions of its programs.

So, comparisons paralleling those made for teachers were undertaken for principals. Their knowledge and acceptance of the principles of the nongraded school were compared, too, and differences in administrative performance were studied as well. What follows is a report of the findings of these studies.

Principal Differences in Knowledge of the Principles of the Nongraded School

Clearly, knowledge differences between principals of graded and nongraded schools are no different than those found among their teachers. Each are equally knowledgeable about these teachings and the differences found are scarce, minimal and attributable to chance.

TABLE 3.9

COMPARISONS OF THE KNOWLEDGE OF THE NONGRADED SCHOOL OF PRINCIPALS OF GRADED, NONGRADED AND MIXED SCHOOLS

1964

Source	DF	SS	MS	F
Between	2	39.60	19.80	.249
Within	15	1194.40	79.63	
Total	17	1234.00		

1965

Source	DF	SS	MS	F
Between	2	214.10	107.05	1.470
Within	14	1019.43	72.82	
Total	16	1233.53		

1966

Source	DF	SS	MS	F
Between	2	355.05	177.52	1.052
Within	11	1856.17	168.74	
Total	13	2211.21		

Though the differences in knowledge of the tenets of nongrading found among principals of graded and nongraded schools were marginal and statistically insignificant perhaps the rate at which it is acquired differs for principals of graded and nongraded schools. After all, principals of nongraded schools make numerous decisions directing the development of nongrading in their schools and, presumably, make them with a well-grounded understanding of the movement's teachings. Principals of graded schools, though, do not have opportunities to develop this background since the very nature of the graded school and its administration virtually preclude such occasions. To test this speculation, the change scores of principals of graded and nongraded schools on the three administrations of the Education Opinion Inventory were contrasted. The results of this analysis are found in Table 3.10.

Clearly, the differences in change scores for principals of graded and nongraded schools are modest and meaningless. This manifestly precludes presuming experience, alone, in administering a nongraded school makes one more conversant with its tenets.

TABLE 3.10

COMPARISONS OF CHANGE SCORES IN PRINCIPALS KNOWLEDGE
OF THE NONGRADED SCHOOL IN GRADED, NONGRADED
AND MIXED SCHOOLS

1964 to 1965

Source	DF	SS	MS	F
Between	2	27.24	13.62	.248
Within	14	769.23	54.95	
Total	16	796.47		

1965 to 1966

Source	DF	SS	MS	F
Between	2	330.52	165.26	1.525
Within	11	1191.83	108.35	
Total	13	1522.36		

If successful nongraded instruction emanates from informed leadership, contemporary efforts at nongrading may be underpowered. Nowhere were indications found that principals of nongraded schools are more knowing of the teachings of the movement than their colleagues administering graded instructional programs. Furthermore, time does little to alter this situation and the gains in knowledge of these teachings made by principals of nongraded schools between administrations of the Education Opinion Inventory are virtually identical to those made by principals of graded schools. Should the success of nongrading depend on informed leadership, current efforts at nongrading could be foundering because low-voltage solutions are being supplied to the high powered instructional problems of nongrading.

Principal Differences in Acceptance of the Principles of the Nongraded School

Like knowledge, the differences in acceptance of the tenets of the nongraded school among principals of graded and nongraded schools are minimal. No statistically significant differences were evident here either on any of the administrations of the Education Opinion Inventory. Furthermore, the differences in their change scores are slight and attributable to chance variations.

TABLE 3.11

DIFFERENCES BETWEEN PRINCIPALS OF GRADED AND NONGRADED
SCHOOLS IN ACCEPTANCE OF THE TEACHING OF THE
NONGRADED SCHOOL

	1964 4.61		1965 3.00		1966 3.25	
	Above	Below	Above	Below	Above	Below
Nongraded	3	4	4	3	2	3
Graded	1	2	1	1	1	1
Both	3	5	3	5	2	3
	Chi-Sq. .125		Chi. Sq. .135		Chi-Sq. .0	

TABLE 3.12

DIFFERENCES IN CHANGE SCORES IN ACCEPTANCE OF THE TEACHINGS OF THE NONGRADED SCHOOL BY PRINCIPALS OF GRADED AND NONGRADED SCHOOLS

	1964 - 1965	1965 - 1966	1964 - 1966
Sum R (+)	69	38	46
Sum R (-)	67	40	32
N	16	12	12
T	67	38	32

So, if the differences in the educational programs in graded and nongraded schools depended on differences in the principals' knowledge and acceptance of the teachings of the nongraded school, these differences will be slight and negligible. Initially, and on subsequent measurements, no statistically significant differences were found in either their knowledge or acceptance of the doctrines of the nongraded school.

Principal Differences in Administrative Performance

The principals' ratings on the Principals' Interview Guide were used in evaluating their administrative performance. The Guide uses critical tasks of administration - Involving People, Making Policy, Determining Role, Setting Goals and Appraising Programs and the principals' responses in each category were categorized as follows:

Involving People:

A. None. Tradition, previously established policies or perceived dictates of higher authority (State Education Department, Superintendent, School Board, etc.,) followed.

B. Principal decides what shall be done.

C. A committee of people affected are involved.

Making Policy:	A. None made
	B. Graded school
	C. Nongraded school
Determining Role:	A. None
	B. Graded school
	C. Nongraded school
Setting Goals:	A. No goals set
	B. Graded school
	C. Nongraded school
Appraising Program:	A. No appraisals made
	B. Appraisals based on intuition or anecdotal evidence
	C. Appraisal follows a specified plan for evaluation

These data were then organized by school-type: *Nongraded* - all classes in the school are nongraded; *Graded* - all classes are graded and, *Both* - the school has both graded and nongraded classes.

The number of replies analyzed, not the number of principals questioned, for each task appears in parenthesis (N's). Each principal was asked the same questions, but since different numbers of schools are in each classification, the N's are, naturally, different.

The results of the data are found in Table 3.13.

TABLE 3.13

DIFFERENCES IN PRINCIPALS' ADMINISTRATIVE PERFORMANCES

	1964					1966			
Program Operation	None	Principal's Decision	Committee Involved	N	School Type	None	Principal's Decision	Committee Involved	N
Involving People	66.67	18.59	14.74	156	Nongraded	74.18	6.04	19.78	182
	71.80	26.92	1.28	78	Graded	82.05	11.54	6.41	78
	64.90	23.56	11.54	208	Both	76.92	6.25	16.83	208
		Graded	Nongraded				Graded	Nongraded	
Making Policy	65.86	14.63	19.51	246	Nongraded	70.03	9.41	20.56	287
	74.80	21.14	4.06	123	Graded	78.05	16.26	5.67	123
	55.49	17.07	27.44	328	Both	81.33	13.78	4.89	225
Determining Role	34.73	52.08	13.19	144	Nongraded	66.67	17.26	16.07	168
	36.11	59.72	4.17	72	Graded	81.94	15.28	2.78	72
	36.98	44.27	18.75	192	Both	61.46	12.50	26.04	192
Setting Goals	59.29	23.33	17.38	420	Nongraded	64.08	17.76	18.16	490
	60.95	30.00	9.05	210	Graded	62.86	28.57	8.57	210
	58.75	14.46	26.79	560	Both	47.68	15.71	36.61	560
		Intuition and Anecdotal Evidence	A Specified Plan for Evaluation				Intuition and Anecdotal Evidence	A Specified Plan for Evaluation	
Appraising Programs	95.83	.52	3.65	192	Nongraded	90.18	2.68	7.14	224
	94.79	3.13	2.08	96	Graded	90.63	1.04	8.33	96
	87.89	4.30	7.81	256	Both	81.64	6.64	11.72	256

Based on the data in Table 3.13,the following conclusions are offered:

1. Involving People.-- Few differences, initially or on second administration, were found in the ways principals involve people in the school's operation. Generally, regardless of the school-type, people are simply not involved

here. Where actions are required, the principal typically decides what shall be done. They tend, though not strongly, in schools with both graded and nongraded classes, to involve people in the school's operation and there are indications this increases with time.

2. Making Policy.-- Principals with nongraded, graded, or both type classes in their schools differ only slightly in their policy-making activities. Either minimal policy-making activities are undertaken or the policies developed for the graded school still guide the school's operations. This is truer for graded and nongraded schools than for schools with both graded and nongraded classes. The latter was true only on initial inquiry for on follow-up investigations these initial differences disappear and the three school types are virtually identical in their policy-making activities.

3. Determining Role.-- Here, too, the principals of schools with graded, nongraded, and both type classes tend to be more similar than dissimilar. Initially, determining role garnered considerable administrative attention, but on subsequent study, this was not the case. Each time, however, the actions taken here tended to confirm the roles associated with graded schools rather than role definitions compatible with the nongraded school. Principals of schools with both graded and nongraded classes differ more from this description than principals of schools where all classes are nongraded. The former tend to define roles more in keeping with the aims of nongraded instruction than the latter and this tendency increases over time.

4. Setting Goals.-- The activities of principals on this task are parallel and consistent. By and large, school type is a reasonably poor discriminator, too, for the goals established regardless of it are harmonious with the outcomes of graded school instruction. Goal setting activities in schools with both type classes is manifestly different from that in schools that are either entirely

graded or entirely nongraded. The principals of the former are increasingly involved with this task and work rather consistently towards establishing goals that will meet the ends of the nongraded school.

5. Appraising Programs.-- The picture on appraisal is clear and discouraging. Principals, regardless of school type, simply do not appraise the school's educational and instructional offerings. Certainly, structured study of these activities is a lost or at least neglected art. There is some sketchy evidence that principals of schools with both graded and nongraded classes appraise their programs somewhat more than other principals, and these studies tend to be structured. However, realizing that in many of these schools nongrading is a pilot program, one wonders about the evidence which will be presented to justify its continuance or discontinuance.

To determine if detail aids discernment, the principals' administrative performance in the three types of schools studied was broken out along program lines. The data for these analyses are in the Appendix and only the paradigm for the analysis and the conclusions reached are presented here.

The schematic for this analysis appears below:

TABLE 3.14

PARADIGM FOR THE ANALYSIS OF ADMINISTRATIVE FUNCTION IN NONGRADED SCHOOLS

Program Operation	Administrative Function														
	Coordinating Administrative Structure and Function									Improving Educational Programs					
	Involving People			Making Policy			Determining Roles			Setting Goals			Appraising Programs		
	N.G	G.	Both	N.G.	G.	Both	N.G.	G.	Both	N.G.	G.	Both	N.G.	G.	Both
Individual Differences															
Pupil Progress															
Evaluation															
Curriculum															
Instruction															
Organization for Learning															

Individual differences.-- The basic differences in educational beliefs between graded and nongraded schools suggest great differences should exist in the leadership principals of nongraded schools give to provisions made for individual differences. This is manifestly so. Virtually without exception, principals of graded schools do little or nothing to provide for individual differences. But, having all or only some of the classes in a school nongraded has minimal influence on the performance of principals in this area. In either setting they provide leadership. This is not evident with the two tasks central to providing for individual differences, making policy and determining role. Furthermore, most actions of principals, particularly in the later stages of the program rather than the earlier stages, are consonant with the rubrics of the nongraded school movement. Not unexpectedly, the efficacy of these efforts go unappraised for here as elsewhere principals simply do not appraise what schools are doing regardless of the type of program they are operating.

Pupil progress.-- Next to individual differences, pupil progress is perhaps the educational function most closely associated with the nongraded school. Indeed some schools call their programs continuous pupil progress plans rather than nongraded plans because it is more descriptive of their educational objectives. But unhappily, deeds do not match desires. Regardless of school-type, the leadership given the cause of pupil progress by these principals is virtually identical.

First, little is done and the actions taken, by and large, are harmonious with the ends of the graded school's instructional commitment more than the nongraded school's. The goals set, the policies made and the roles determined are calculated to make efforts at having students of a common age master a common body of information more efficient and more effecitve. Lamentably, the efficacy of these efforts is not appraised in any of the school-types studied.

Schools with both graded and nongraded classes stray, somewhat, from this pattern. They work more at determining roles, making policies and setting goals. Furthermore, these efforts are compatible with the ends of the nongraded school. Perhaps the very existence of contending educational viewpoints under a single roof has a salutary effect on the efforts made to nongrade a school. In such a setting differences in policies, roles and goals must be clear, sharp and real for the guidance of teachers with nongraded classes.

Evaluation.-- Differences in administrative performance in evaluation are rare and erratic. So much so that distinct patterns for the performances of principals of any of the school-types studied do not emerge. Their involvement is so limited that evaluation is virtually immune from their influence. This is equally true in schools where all classes are nongraded, where all classes are graded, and where both graded and nongraded classes are found in the same school. Since evaluation is usually a thorny area, at best, perhaps prudence dictates sleeping dogs be permitted to lie and involvement here **is** avoided for when actions are taken they tend to confirm the educational beliefs of the graded school about students and learning rather than those of the nongraded school.

Curriculum.-- Differences in administrative performance among principals of graded, nongraded, and schools with both graded and nongraded classes are invisible and indeed nonexisting in the performance of their administrative tasks in curriculum. Virtually nothing is done by them. The curriculum changes made tend to be superficial and supportive of the goals of the graded more than the nongraded school. Furthermore, rather than pushing forward with curriculum revision which would truly make the school nongraded, the tendency is to stabilize on early accomplishments or retrench on the effort made to make the school nongraded.

Instruction.-- The data on administrative performance and instructional practices are bewildering. Few genuine and persisting differences in the performances of principals of graded and nongraded schools are evident. In fact, for schools whose beliefs about instruction are presumably polarized, these similarities are alarming.

It is only when a few actions taken by principals of schools with both graded and nongraded classes are contrasted with those of principals of graded and principals of nongraded schools that any differences, frail as they are, emerge. The pattern, for what it is worth, seems to be that when graded and nongraded classes are under the jurisdiction of one principal, he is considerably more involved in making policies, determining roles, and setting goals for the school's instructional program than are principals of schools where all classes are either graded or nongraded. Again this dichotomous arrangement may serve to sharpen understandings about the things schools should be doing for children.

But, inescapably, the conclusion forthcoming from these data is that principals generally have virtually ignored the leadership expected from them in molding the school's instructional program. Mainly, type of class organization notwithstanding, principals just are not involved in the school's instructional program. Perhaps they feel teachers are competent to make the decisions needed about instruction without their help and leadership. Or perhaps they are unsure of the shape the school's instructional program should assume, for when they act they tend to reaffirm the beliefs associated with instruction in a graded school rather than formulate a nongraded school instructional program.

Organization for Learning.-- Differences in the administrative actions of principals of schools with graded and nongraded classes are pronounced. Schools where classes are nongraded, in whole or in part, find principals organizing for learning. Not so with graded schools. In the former, people are involved in making the policies, setting the goals and determining the roles required by this organization. The principals of graded schools give custodial care to the organization inherited or mandated by a higher authority. While differences in the appraisals made of these organizations can be found they are less acute than those found in the other tasks of administration. This is especially true at the outset of nongrading. With time, however, these differences tend to increase. This is understandable. In the initial stages there is little to appraise, with time this changes and opportunities for appraisal multiply. Perhaps, too, principals of graded schools feel no empathy for an organization for learning they had little or no voice in establishing and developing and feel little need to wonder how well it functions.

Differences in the administrative performances of principals of all nongraded schools and those with some graded and some nongraded classes are less pronounced. They are greatest in determining role and setting goals. Here principals of schools with both graded and nongraded classes are more involved. In many of these schools nongrading is a pilot project or experimental program. Obviously, people want to know the differences between it and the graded school program. This requires setting goals. Furthermore, since it is experimental its efficacy will be questioned and the decision to continue or abandon it must ultimately be made. This requires appraisal.

Leadership differences among principals of graded, nongraded and partially nongraded schools are so minute that generalizations based on them are hesitantly and conditionally offered. Those discerned related to organization rather than instruction. Unlike principals of graded schools, principals with nongraded programs molded the school's routines, procedures and organization to include a setting conducive to nongrading. But, like their colleagues in graded schools, direct involvement with instructional protocol was avoided. The root causes for this discrimination are probably unfathomable. Perhaps it is an ingenuous, though tacit, demarkation of the roles and responsibilities of teachers and principals in producing a nongraded instructional program. Doubtlessly this is necessary for successful nongrading but ultimately considerably more precision and discernment must be brought to this process if a common ground for discussing the direction and destiny of the program is to emerge.

COMPARISONS OF STUDENT DIFFERENCES IN ACHIEVEMENT AND ADJUSTMENT IN GRADED AND NONGRADED SCHOOLS

The efficacy of every enterprise is judged by its attainments and education is not exempt from this generalization. Furthermore, before propositions for major changes in established routines and procedures are endorsed their contribution to the enterprise's attainments are scrutinized. Educators and parents, for example, gauge the merits of schools and instructional programs by their attainments with children and proposed innovations are eyed carefully before accepted. Hence, the impact of nongrading on student achievement and adjustment was studied.

The classifications developed for nongraded programs were again used and the changes in children's achievement and adjustment scores for each instructional level for each year of the study were contrasted. The anova's for these analyses are in the Appendix and only the F's for them will be presented here.

Achievement

Gains in reading achievement were scored by children in all programs, graded and nongraded, but the differences among them were small. This suggests that nongrading, as designed and developed by the participants in this study, has a minimal influence on the reading attainments of children.

Somewhat different results emerge from the data on gains in arithmetic achievement. Here approximately half of the F's were significant and associated with mean gains in arithmetic computation so a detailed examination of these gains was undertaken.

In most instances the mean gains of the graded classes (D) were greater than those for any of the nongraded groups. But, since differences also existed in the numbers in each group as well as its standard deviation, fuller analysis were needed.

But additional analysis did not provide additional insights into the factors producing the observed significant differences in achievement gains in arithmetic

TABLE 3.15

TABLE OF F RATIOES FOR ANALYSIS OF VARIANCE ON STUDENT ACHIEVEMENT IN GRADED AND NONGRADED SCHOOLS

		1-2				2-3			
		1964-1965		1965-1966		1964-1965		1965-1966	
		R.S.	G.E.	R.S.	G.E.	R.S.	G.E.	R.S.	G.E.
					Achievement				
Reading	Word Knowledge	1.17	.71	.92	1.78	1.05	.87	1.68	.96
	Word Discrimination	.94	.31	.70	2.56	1.25	1.20	.42	9.65
	Total Reading	.59	.22	.92	1.10	.90	1.55	.98	.50
Arithmetic	Concepts & Skills	.96	1.14	.67	.42	3.96*	3.74*	3.41*	4.15**
	Problem Solving and Concepts					1.71	7.66**	1.12	1.95
		3-4				4-5			
Reading	Word Knowledge	.57	1.07	1.41	.86*			.61	.59
	Word Discrimination	1.81	.65	.79	.83			2.32	.90
	Total Reading	.86	1.72	.46	.18				
Arithmetic	Concepts & Skills	3.71*	3.13*	9.37**	6.02**			22.35**	.48
	Problem Solving and Concepts	1.17	.72	2.45	.72			6.53**	1.21

* = 5%
** = 01%

computation. For instance, analysis of the 2 to 3 year achievement data finds the gains of students in type C nongraded programs significantly larger than those of students from either type B nongraded programs or graded classes. However, this is an ad hoc advantage which does not replicate from first test period (1964-65) to second (1965-66). As a matter of fact the results virtually reverse themselves.

TABLE 3.16

MEAN GAINS IN ARITHMETIC COMPUTATION ACHIEVEMENT SCORES FOR GRADED AND NONGRADED CLASSES FOR CONSECUTIVE TESTING PERIODS

ARITHMETIC COMPUTATION

	2-3 Year in School	3-4 Year in School	
Type Program	Grade Equ'vnt	Grade Equ'vnt	Test Period
A	.5	.9	1964-65
	.7	1.3	1965-66
B	.7	1.0	1964-65
	1.1	1.5	1965-66
C	.8	.8	1964-65
	.9	1.2	1965-66
D	.6	1.1	1964-65
	.8	2.0	1965-66

Now the gains of students from type B nongraded programs are statistically greater than those of students from either type C nongraded programs or graded programs.

Equally baffling results come from a detailed study of the statistically significant differences in the arithmetic computation gains for the 3 to 4 year. In all cases the gains of the graded group, D, are significantly greater than those of the students in Type C nongraded programs and for the second testing period they are greater than those of students in all types of nongraded programs. Furthermore, for this period, too, the gains of students from type A nongraded programs are also greater than those of students from type B programs.

So, what appeared a promising initial finding turned out to be inconsequential on detailed analysis. It is difficult to look at the arithmetic achievement data with this additional information and contend that nongrading has a perceptible influence on the attainments of children.

Conversion to nongrading must be made on grounds other than its ability to materially increase childrens academic attainments for such beliefs are difficult to substantiate and virtually impossible to produce. Schools nongrading with the implicit or expressed belief that learning increments will result are apt to suffer rude disappointments and, in despair, return to the graded school from which they probably never departed.

Adjustment

Adjustment, like achievement, was measured each year of the study and the changes on Pupil Portraits from administration to administration used to calculate adjustment differences between children in graded and nongraded classes. Unlike achievement, however, adjustment was not measured at each school year level but at the end of the primary and succeeding years of the intermediate school. This produced change scores for the 3rd to 4th school year which could be replicated and adjustment change scores for the 4th to 5th year of school which could not be replicated.

Clearly the adjustment score changes are minimal for both graded and nongraded classes and tend to be zero. Furthermore, the patternlessness of these changes lend further sustanance to the "no difference" observation offered earlier.

TABLE 3.17

MEAN GAINS IN ADJUSTMENT FOR GRADED AND NONGRADED CLASSES FOR CONSECUTIVE TESTING PERIODS

	3-4 Year in School							4-5 Year in School					
	Adjustment							Adjustment					
Type Program	School	Class-mates	Teacher	Home	Self	Total	Testing Period	School	Class-mates	Teacher	Home	Self	Total
A	.16	-.34	.67	.63	.06	.25	1964-65						
	.47	.94	-.15	.12	-1.74	3.02	1965-66	.04	.89	.21	.59	1.54	3.39
B	-.11	-.83	.28	.54	-.54	-1.46	1964-65						
	.04	.40	-.34	-1.21	.97	-.27	1965-66	.29	1.09	.80	-.25	1.02	2.82
C	.11	-1.23	.45	.89	-.41	-1.17	1964-65						
	.13	.88	-.25	-.61	-1.36	1.46	1965-66	-.12	.40	.11	-.49	.54	.28
D	.18	-.43	.96	.59	-1.01	-1.65	1964-65						
	.01	.82	.65	-.02	1.32	2.29	1965-66	.66	.89	.18	-.05	2.01	3.88

Frequently the subtest scores for measures of this type are less discerning of differences and less stable than the test's total score. But in this instance this is not the case for, even though the largest changes occur here, these changes, too, tend to be minimal and suggestive of no real differences.

Obviously every generalization has its exceptions and the exception to the one just offered occurs with the total test change score for the 4th to the

5th year of school. This difference was significant at the .05% level. The only other significant F occurred at this year level, too. The F for adjustment to self was significant at the .01% level. Unfortunately, the stability of these differences can not be estimated since they occurred with the data where replication study was not possible. However, with the detailed study done on the differences identified it is clear that the significance is not produced because of the size of the difference in chance scores between any of the nongraded patterns studied and classes in the graded schools. Rather, the significance results from the difference between nongraded types (A and B).

TABLE 3.18

TABLE OF F RATIOES FROM ANALYSIS OF VARIANCE ON
ADJUSTMENT AMONG NONGRADED AND GRADED SCHOOLS

		1964-1965	1965-1966	1965-1966
		3-4	3-4	4-5
Adjustment	School	.23	1.19	2.54
	Classmates	2.32	.72	1.34
	Teacher	1.13	2.11	1.31
	Home	.19	2.51	2.73
	Self	.99	.44	4.40**
	Total	.44	1.29	3.22*

* = .05%
** = .01%

These findings might have been anticipated since the principal differences between the graded and nongraded schools studied were organizational, not instructional, and these, by themselves, can hardly be expected to produce genuine differences in the achievement and adjustment of children. These findings, furthermore, are not unique. They are reasonably representative of most of the findings of investigations into the efficacy of nongrading.

FACTORS INFLUENCING STUDENT ACHIEVEMENT AND ADJUSTMENT IN GRADED AND NONGRADED SCHOOLS

Hypotheses are chiefly speculations searching of confirmation. Clearly, the hypotheses of this study regarding the impact of nongrading on student achievement and adjustment were not supported by the data and, so, had to be disconfirmed.

But, clearly, the schools included in this study relied heavily, if not exclusively, on organizational alterations to produce nongrading. The ineffectualness of such procedures has been demonstrated. However, one could argue that such changes were never considered capable, in and of themselves, of directly influencing student adjustment and achievement. Rather, they were intermediate steps in producing a learning environment conducive to maximizing the influence of other factors known or assumed to relate to improved student achievement and adjustment. These "other factors" included many of the *imput elements* employed in this study and described in Chapter I.

But, not all these *imput elements* were used in this analysis. Some had such minimal discriminatory power that the time and cost of including them in this analyses simply for consistancy could not be justified. So few teachers, for example, had taught in secondary schools that one would be hard put to justify retaining this variable. While eliminations such as this greatly reduced the expansiveness of the analysis it did little to reduce its comprehensiveness since only variables of demonstrated irrelevancy were eliminated. When this was completed, the variables left for analysis were:

Student

- Achievement
    - Reading
    - Arithmetic
- School Placement

Teacher

- Age
- Education
- Area of Preparation
- Total Teaching Experience
- Provisions made for Continuous Progress
- Acceptance of the Principles of the Nongraded School

Principals

- Age
- Education
- Area of Preparation
- Total Teacning Experience
- Years in Present Position
- Years Administering a Nongraded School
- Total Administrative Experience
- Acceptance of the Principles of the Nongraded School

Now, the students' gains in achievement and adjustment for each year of the study in each of the program-types described were analyzed. This yielded a substantial number of F's, 127, and reproducing the Anova for each of them here obfuscates rather than illuminates the findings. So, as before, the Anova's for the analysis are found in the Appendix and only a Table of F's is provided here.

The results of this analysis are scarcely more supportive of the nongraded school than the previous. One would be hard-put to demonstrate that nongrading, as developed by the participants in this study, produces a learning environment which liberates those factors associated with school achievement and adjustment so the attainments of children in such settings outstrip those of their counterparts in graded classes. The overwhelming number of F's were insignificant (99%) and, in most cases the significant found on initial study did not replicate. So even this effort failed to isolate the benefits these attempts at nongrading hoped to produce for none of the student, teacher or principal factors included combined meaningfully and consistantly to produce increments in student school

TABLE 3.19

SIGNIFICANT F RATIOES FOR FACTORS INFLUENCING STUDENT ACHIEVEMENT AND ADJUSTMENT IN GRADED AND NONGRADED SCHOOLS

Student

	Year	Class	Reading R	Reading C	Arithmetic R	Arithmetic C	School Place. R	School Place. C
W.K.	64-65	2-3			6.78*			
	" "						.91*	
	65-66						1.18*	
R.	64-65	2-3				8.22*		
	65-66	4-5		4.93*				
	" "						1.12*	
A.C.	64-65	2-3	20.22*	17.64*				
	" "	3-4		4.28*				
	" "						.82*	
	65-66	2-3		5.28*				
	" "	3-4				22.54**		
A.	64-65	2-3		18.39*				
PS & C	65-66	4-5		11.43**				
A.T.	64-65	1-2		11.04*				

Teacher

	Year	Class	Age R	Age C	Education R	Education C	Preparation R	Preparation C
W.D.	65-66	3-4	4.95*			7.36*		
W.K.	64-65	3-4			5.10*			
	65-66	2-3				10.10*		
	" "	3-4	4.94*					
R.	" "	2-3	4.30*					
	" "	3-4	4.95*					
	" "	4-5						4.20*
A.C.	" "	2-3				9.71*		6.64*
A.PSC	" "	2-3	7.54**	5.57*				5.01*
A.T.	64-65	1-2					7.76*	
T.A.S.	65-66	4-5				4.48*		

	Year	Class	Experience R	Experience C	Cont. Prog. R	Cont. Prog. C	Acc'pt. of NGS R	Acc'pt. of NGS C
W.D.	64-65	3-4						19.47**
W.K.	" "	3-4				50.05*		
	65-66	3-4					10.68*	8.55*
	" "	4-5					27.07**	122.93**
R.	64-65	2-3			19.05*			
	" "	3-4		4.59*				
	65-66	3-4					9.14*	
	" "	4-5						.79*
A.C.	64-65	2-3		5.41*				
A.PSC	" "	2-3		7.34*				
A.T.	65-66	1-2		4.43*				
T.A.S.	" "	4-5					8.80*	

TABLE 3.19 (continued)

Principal

	Year	Class	Age R	Age C	Education R	Education C	Preparation R	Preparation C
W.D.	64-65	3-4			24.24*			
R.	" "	2-3					13.62*	
A.C.	65-66	2-3		12.10*	41.96*	28.92*		
	" "	4-5		7.33*				7.60*
T.A.S.	" "	3-4						7.10*

	Year	Class	Experience R	Experience C	Yrs. Present Pos'tn. R	Yrs. Present Pos'tn. C	Yrs. Adminis. NGS R	Yrs. Adminis. NGS C
W.D.	64-65	3-4				77.96*		
	65-66	1-2			15.48*			
W.K.	" "	4-5						128.18**
R.	" "	1-2			8.48*			645.16*
	64-65	3-4	64.44*	21.89*				
A.C.	65-66	2-3		19.48*				
	" "	3-4						20.69*
A.T.	64-65	1-2						448.03*
	65-66	1-2		285.82*				

	Year	Class	Total Adminis. Exper. R	Total Adminis. Exper. C	Accept. of Nongrading R	Accept. of Nongrading C	Socio-Econ. Status R	Socio-Econ. Status C
W.D.	64-65	3-4				55.57**		
W.K.	" "	2-3						25.97*
R.	" "	3-4	8.01*					14.25*
A.C.	" "	2-3						14.40*
	65-66	2-3		14.71*				

* = .05%
** = .01%

W.D. = Word Discrimination
R. = Reading
A.C. = Arithmetic Computation
A.T. = Arithmetic Total
W.K. = Word Knowledge
A. PS & C = Arithmetic Problem Solving and Concepts
T.A.S. = Total Adjustment Score

achievement and adjustment.

If major success in affecting student school achievement and adjustment is to be realized alternatives to the procedures presently and routinely initiated to improve instruction must be developed. Rather than rely on superficial manipulations of institutional variables to realize this end, procedures for affecting directly the variable clearly associated with learning, instruction, must be developed. Modifications in organizational patterns, grouping practices and staffing designs simply are incapable of doing the job expected of them and should be renounced with all their ineffectual works and pomps. These changes do not liberate an indefinable force presumed to be penned up in students, teachers and principals capable of producing achievement and adjustment heights unheard of under older organizations. This just does not happen. New directions for individualization of instruction are obviously needed if nongrading is to endure. Rather than banking on the benefits accruing to students from the manipulation of organizational variables concentrated efforts must be made to develop techniques for greater students involvement and control in monitoring and guiding their own development. Until this is done students will not progress at their own rates through the school's curriculum but at rates tolerable to their schools and their teachers.

Barring such instructional differentiations it is unreasonable to anticipate discernable differences in student achievement and adjustment. Priorities in the procedures commonly developed to nongrade schools must be re-examined and re-ordered. Alterations in instructional strategies, not organizational patterns, must be given priority if nongrading is to be truly a hallmark of the school's instructional program. Without such changes it is highly likely that graded instructional program has not been replaced and, consequently, differences in learning attainments are reasonably unlikely.

Even so, converts to nongrading preach its wonders and espouse one organizational pattern or another as nongrading. Somehow they seem convinced that these administrative arrangements will bring the right teacher face-to-face with the right group of children at the right time in the right learning environment and a truly marvelous educational experience will ensue. Perhaps, so. But at best this is an elusive formula and in truth probably a nonexistant one. Even if these events did transpire the ensuing benefits should be credited to propinquity rather than nongrading.

FACTORS INFLUENCING CONTINUOUS PUPIL PROGRESS

Since continuous student progress is central to the nongraded school movement factors presumed capable of influencing this variable were studied. Essentially continuous progress is the discernable result of a network of interactions between students and teachers, so the variables selected in this analyses were student and teacher variables. Specifically they were:

Student Variables

1. Achievement
2. Adjustment
3. Socio-economic Status
4. Sex

Teacher Variables

1. Knowledge and acceptance of the principles of the nongraded school
2. Classroom teaching performance
3. Selected demographic characteristics

Achievement and Continuous Progress

Responsiveness to individual differences among students is the mark of truly nongraded instruction. The rel~~i~~evance of this concept in providing for continuous progress was studie~~s~~d, too. Essentially efforts were made to ascertain the role of student attainments in reading and arithmetic for his progress through the school's curriculum. Because of the limited number of cases of accelerated progress, this provision for individual differences was not included and the analysis centered on the achievement gains in reading and arithmetic of students with normal progress and students with decelerated progress. As usual, the analysis was completed in the framework developed for classifying nongraded programs for each school year for each year of the study. Within this context the available data permit some generalizations about the impact student achievement has for continuous progress.

It is inescapable. The similarities in the reading and arithmetic accomplishments of students making normal progress through the primaries of all programs studied is marked. Conversely, the likenesses in the achievements of students with deceleration is equally striking. But more importantly, virtually the same provisions were made by graded and nongraded schools alike in providing for these differences in achievement. Apparently academic accomplishment is a critical determiner of the type of progress students will make. More particularly, since the spread in reading gains for students with normal progress and students with decelerated progress was greater than the spread in arithmetic gains, reading achievement may be the major factor considered when deciding on the type of progress students shall make in a nongraded program.

But this is disquietingly reminiscent of the graded school ethos. Inadvertently, perhaps, though the graded school tradition is presumed to have ended

TABLE 3.20

CONTINUOUS PUPIL PROGRESS AND ACHIEVEMENT GAINS IN GRADED AND NONGRADED SCHOOLS

			A			B			C			D		
			N	M	SD	N	M	SD	N	M	SD	N	M	SD
Word Knowledge	First Yr.													
	Normal	(64-65)	367	1.05	.368	160	1.05	.518	495	.82	.691	260	.84	.342
	Decel.		8	.67	.263	1			22	.64	.281	22	.63	.298
	Normal	(65-66)	326	.97	.295	176	1.10	.352	498	1.00	.504	276	.79	.220
	Decel.		0			1			12	.87	.461	28	.71	.224
	Second Yr.													
	Normal	(64-65)	417	1.18	.255	212	1.21	.369	508	1.25	.309	342	1.10	.256
	Decel.		8	.71	.677	3	.69	.457	21	.74	.511	18	.70	.321
	Normal	(65-66)	303	1.30	.242	134	1.46	.700	459	1.35	.416	224	1.20	.288
	Decel.		32	.69	.341	2			14	.64	.392	16	.59	.298
	Third Yr.													
	Normal	(64-65)	416	1.04	.308	221	1.16	.278	504	1.17	.277	424	1.05	.289
	Decel.		21	.78	.361	6			25			10		
	Normal	(65-66)	405	1.37	.279	193	1.18	.434	463	1.20	.417	287	1.35	.360
	Decel.		7	.71	.411	6	.63	.482	16	.71	.329	18	.64	.417
Word Discrimination	First Yr.													
	Normal	(64-65)	367	1.33	.359	160	1.26	.593	495	1.10	.418	260	1.19	.378
	Decel.		8	.71	.417	1			22	.77	.511	22	.68	.497
	Normal	(65-66)	326	1.16	.339	176	1.19	.313	498	1.15	.420	276	.88	.304
	Decel.		0			1			12	.81	.490	28	.71	.311
	Second Yr.													
	Normal	(64-65)	417	.99	.194	212	.96	.213	508	1.05	.246	342	.93	.208
	Decel.		8	.63	.284	3	.59	.317	21	.68	.291	18	.69	.317
	Normal	(65-66)	303	1.11	.325	134	1.18	.397	459	1.13	.344	224	1.14	.230
	Decel.		32			2			14			16		
	Third Yr.													
	Normal	(64-65)	416	.88	.226	221	.87	.257	504	.94	.351	424	.83	.296
	Decel.		21	.61	.326	6	.62	.334	25	.65	.317	10	.59	.322
	Normal	(65-66)	405	1.08	.169	193	.89	.581	463	1.00	.287	287	1.10	.295
	Decel.		7	.71	.291	6	.70	.345	16	.75	.312	18	.77	.312

TABLE 3.20 (continued)

			A			B			C			D		
			N	M	SD	N	M	SD	N	M	SD	N	M	SD
Reading	First Year													
	Normal	(64-65)	367	1.13	.469	160	1.19	.876	495	.95	.424	260	.98	.507
	Decel.		8	.64	.310	1			22	.62	.370	22	.61	.402
	Normal	(65-66)	326	1.13	.400	176	1.22	.528	498	1.06	.613	276	.88	.429
	Decel.		0			1			12	.85	.397	28	.75	.364
	Second Yr.													
	Normal	(64-65)	417	.96	.194	212	1.12	.442	508	1.14	.260	342	1.01	.214
	Decel.		8	.72	.310	3	.75	.521	21	.69	.297	18	.72	.277
	Normal	(65-66)	303	1.39	.285	134	1.42	.774	459	1.47	.508	224	1.29	.306
	Decel.		32	.64	.333	2	.69	.541	14	.82	.591	16	.85	.412
	Third Yr.													
	Normal	(64-65)	416	.87	.360	221	1.14	.423	504	.97	.432	424	.89	.290
	Decel.		21	.64	.321	6	.69	.312	25	.89	.516	10	.60	.199
	Normal	(65-66)	405	1.55	.361	193	1.36	.680	463	1.36	.589	287	1.36	.523
	Decel.		7	.75	.411	6	.81	.347	16	.69	.114	18	.85	.61
Arith. Concept & Skills	First Yr.													
	Normal	(64-65)	367	1.61	.209	160	1.62	.245	495	1.70	.185	260	1.48	.238
	Decel.		8	1.41	.362	1			22	.89	.206	22	.94	.189
	Normal	(65-66)	326	.93	.291	176	1.01	.292	498	.95	.616	276	.93	.234
	Decel.		0	.87	.352	1	.81	.321	12	.87	.312	28	.75	.487
Arithmetic Comprehension	Second Yr.													
	Normal	(64-65)	417	.08	.281	212	.68	.355	508	.81	.237	342	.64	.366
	Decel.		8	.59	.261	3	.64	.339	21	.69	.134	18	.57	.283
	Normal	(65-66)	303	.73	.273	134	1.09	.391	459	.92	.233	224	.85	.269
	Decel.		32	.69	.516	2			14	.65	.261	16	.66	.321
	Third Yr.													
	Normal	(64-65)	416	.93	.295	221	1.04	.301	504	.84	.279	424	1.07	.300
	Decel.		21	.72	.301	6	.77	.296	25	.80	.198	10	.89	.316
	Normal	(65-66)	405	1.36	.291	193	1.54	.443	463	1.19	.343	287	1.98	.821
	Decel.		7	1.01	.206	6	1.00	.349	16	.89	.287	18	1.14	.379

TABLE 3.20 (continued)

			A			B			C			D		
			N	M	SD	N	M	SD	N	M	SD	N	M	SD
Arithmetic Problem Solving & Concepts	Second Yr.													
	Normal	(64-65)	417	.57	.228	212	.69	.218	508	.87	.280	342	.58	.249
	Decel.		8	.54	.231	3	.59	.432	21	.67	.319	18	.51	.300
	Normal	(65-66)	303	.80	.230	134	1.10	.501	459	1.00	.267	224	.96	.282
	Decel.		32	.77	.198	2			14	.81	.263	16	.93	.301
	Third Yr.													
	Normal	(64-65)	416	.94	.385	221	1.05	.345	504	.92	.377	424	1.03	.273
	Decel.		21	.89	.341	6	.92	.289	25	.86	.146	10	.87	.314
	Normal	(65-66)	405	1.27	.360	193	1.41	.471	463	1.27	.444	287	1.48	.437
	Decel.		7	1.01	.561	6	1.00	.399	16	1.09	.362	18	1.19	.321

with the adoption of nongrading, its manifestations linger on in the school's practices of providing for individual differences. Students must still "measure up" to the work of the year or face the prospect of spending another year in the same class. The efficacy of this practice is suspect. Specifically, it is one of the principle targets of the advocates of continuous student progress and a practice inspiring the development of the nongraded school concepts. A review of the compatability of exacting procrustean conformity from children may be beneficial when faculties wishing to develop strategies for nongraded instruction to insure the continuous progress of all the children in their school are developed.

Adjustment and Continuous Progress

Procedures comparable to those described above were used with the adjustment data. The objective, obviously, being to ascertain the role achievement played in the type of progress for students. Here noticeable differences are found and tend to favor students whose progress has been decelerated. Within this generalization there is enormous room for exceptions as indicated by the standard deviation. Furthermore, the number on which this observation is based is small, which introduces the possibility of error.

Within these cautions, some interesting speculations are suggested. Perhaps the students with decelerated progress were selected for this treatment because they were, generally, well-adjusted and able to handle the type of continuous progress with a minimal risk of producing severe adjustment problems. Or, perhaps, the schools and teachers making these provisions, recognized the academic shortcomings of these students and were able to provide a learning environment which fosters wholesome adjustment. Lastly, it could be that deceleration provided these students with the opportunity to increase their achievement which in turn bolstered their adjustment. But this, at best is "which came first" speculation for it is equally possible that during this period of decelerated progress significant gains in achievement were made which in turn boosted the student's adjustment. Whichever reason is correct, graded schools would have to be credited with doing the best job for students with decelerated progress in these schools rather consistantly show greater increases in adjustment in all categories used than children from nongraded schools. Apparently, student progress can be decelerated without producing adjustment trauma and, apparently too, this can be accomplished better in graded schools than nongraded schools.

TABLE 3.21

CONTINUOUS PUPIL PROGRESS AND ADJUSTMENT GAINS IN GRADED AND NONGRADED SCHOOLS

		A			B			C			D		
		N	M	SD	N	M	SD	N	M	SD	N	M	SD
						Adjustment of: Pupil to School							
Third Yr.													
Normal	(64-65)	416	.16	.171	221	-.11	.120	504	.11	.154	424	.18	-.092
Decel.		21	.952	3.471	5	.600	2.653	16	.687	2.083	9	3.222	3.552
Normal	(65-66)	405	.47	.112	193	.04	.101	463	.13	.115	287	.01	.145
Decel.		7	1.286	1.160	5	.200	1.720	14	.500	2.353	18	1.786	2.807
						Adjustment of: Pupil to Teacher							
Third Yr.													
Normal	(64-65)	416	-.34	.138	221	-.83	.163	504	-1.23	.184	424	-.43	.127
Decel.		21	-.095	2.408	5	1.800	2.786	16	.750	2.537	9	2.000	2.944
Normal	(65-66)	405	.94	.158	193	.40	.181	463	.88	.158	287	.82	.126
Decel.		7	.857	1.245	5	.600	2.498	14	.714	2.864	18	1.714	3.954
						Adjustment of: Pupil to Classmates							
Third Yr.													
Normal	(64-65)	416	.67	.086	221	.28	.145	504	.45	.181	424	.96	.140
Decel.		21	.048	3.415	5	3.200	2.135	16	1.375	4.181	9	1.889	4.040
Normal	(65-66)	405	-.15	.140	193	-.34	.162	463	-.25	.163	287	.65	.174
Decel.		7	1.429	2.921	5	.600	2.417	14	1.071	3.058	18	3.143	4.257
						Adjustment of: Pupil to Self							
Third Yr.													
Normal	(64-65)	416	.63	.153	221	.54	.134	504	.89	.275	424	.59	.135
Decel.		21	1.286	4.176	5	.800	4.354	16	1.750	3.531	9	.889	4.408
Normal	(65-66)	405	.12	.169	193	-1.21	.187	463	-.63	.181	287	-.02	.186
Decel.		7	-2.286	2.814	5	3.000	2.098	14	1.500	3.660	18	3.357	3.772
						Adjustment of: Pupil to Home							
Third Yr.													
Normal	(64-65)	416	.06	.224	221	-.54	.141	504	-.41	.132	424	-1.01	.210
Decel.		21	1.143	3.931	5	-.200	4.833	16	1.182	3.486	9	1.222	5.094
Normal	(65-66)	405	1.74	.163	193	.97	.223	463	1.36	.142	287	1.32	.315
Decel.		7	0	00	5	2.000	3.521	14	2.357	3.866	18	6.000	4.472
						Total Adjustment							
Third Yr.													
Normal	(64-65)	416	.25	.495	221	-1.46	.354	504	-1.17	.692	424	-1.65	.413
Decel.		21	2.857	12.411	5	6.200	12.766	16	6.375	10.030	9	9.222	13.256
Normal	(65-66)	405	3.02	.423	193	-.27	.550	463	1.46	.394	287	2.29	.608
Decel.		7	1.286	10.833	5	6.400	3.774	14	6.143	11.581	18	16.000	14.142

Socio-economic Status

Ten occupational categories were developed from the modified Warner Index for the study and used to classify the information on father's occupation supplied by children. The consistancy of information of this type supplied by young children is frequently suspect. Since it was supplied twice by most children and three times by a lesser number, its reliability was calculated. The resulting coefficients are generally high and apparently greater confidence may be placed in the reports of children of their parents' occupation than previously believed. However, the accuracy of this information is untested, but marked similarity exists between the distribution of occupations reported by children in the study and that developed from the report of the Bureau of the Census for these regions. This might be used as a crude estimate of the validity of the data reported.

		TEST ADMINISTRATION		
		1964	1965	1966
TEST ADMINISTRATION	1964		.94	.93
	1965			.95
	1966			

But, clearly this distribution of occupations is skewed. Most of the children attending these schools come from homes of families in the upper occupational groupings with representation from other homes wavering between the nill and the negligible. While this inequality severely restricts the universality of the conclusions and raises questions about the appropriateness of the classification system, it also ignites interesting speculations about the communities turning to nongrading as the solution to their educational aspirations. Perhaps unconsidered and unmeasurable community values and interests dictate the adoption and development of nongraded programs in its schools more than the demonstrated educational merits of the programs themselves.

Within the limitations noted above, three questions about socio-economic status and continuous progress may be answered. First, are the provisions made for continuous progress different for children from different socio-economic strata? That is, are disproportionate numbers of children from any socio-economic level accelerated or decelerated through the school's curriculum? Next, taken as a whole, do nongraded schools differ from graded schools in the provisions made for the continuous progress of children from various socio-economic areas? Lastly, for this population, are the numbers of children from certain socio-economic classifications accelerated or decelerated through the primary years of school disproportionate to their number in the study population?

The ill-defined beginnings of a phenomenon eminates from these data but it must be emphasized that it is a feeble tracing rather than an indelible etching for the number of cases on which it is predicated is uniquely small and a relatively minor change in numbers could upset the conclusions tendered. At any rate, regardless of the type of nongraded or graded program operative, a disproportionate number of children from the homes in the lower socio-economic echelon have decelerated progress through the primary school years. Conversely, few pupils from these groupings are accelerated through these same years of school while the number of children from the upper reaches of the socio-economic scale accelerated through the primary far exceed their proportion in the study population.

Contrasting the data on continuous progress for graded schools with the totals for nongraded schools generally confirms these conclusions. Deceleration, in both graded and nongraded schools, is the dominant mode of providing for con-

TABLE 3.22

CONTINUOUS PUPIL PROGRESS AND SOCIO-ECONOMIC STATUS IN GRADED AND NONGRADED SCHOOLS

					A-Type				B-Type				C-Type				All Non-Graded				Graded Classes				Total			
			1964 1965	1965 1966	1964 1965		1965 1966		1964 1965		1965 1966		1964 1965		1965 1966		1964 1965		1965 1966		1964 1965		1965 1966		1964 1965		1965 1966	
					Acc.	Ret.	Acc.	Ret.	Acc.	Ret.	Acc.	Ret.	Acc.	Ret.	Acc.	Ret.	Acc.	Ret.	Acc.	Ret.	Acc.	Ret.	Acc.	Ret.	Acc.	Ret.	Acc.	Ret.
0	Unemployed	N								1								1				1				2		
		%								8.0								1.0				3.0				2.0		
1	Farm Laborers & Foremen (unadj.)	N	2	3																								
		%	.02	.02																								
2	Farmers & Farm Managers (unadj.)	N	48	55		1								1				2				4				6		
		%	4.5	3.3		4.0								3.0				2.0				12.0				6.0		
3	Laborers, exc. farm & mine	N	37	81		5				2				2				9				7				16		
		%	3.4	4.9		20.0				16.0				6.0				13.0				22.0				16.0		
4	Service Workers (household,etc.)	N	79	122						1				6				7								7		
		%	7.3	7.4						8.0				19.0				10.0								7.0		
5	Operative & kindred workers	N	168	232	1	9				2				6			1	16				3			1	19		
		%	15.6	14.1	8.0	36.0				16.0				16.0			8.0	23.0				9.0			10.0	19.0		
6	Craftsmen, Foremen & kindred workers	N	244	357	5	4				4				5			5	13				9			5	22		
		%	22.7	21.7	41.0	16.0				33.0				16.0			41.0	19.0				29.0			50.0	22.0		
7	Clerical, sales & kindred workers	N	160	231	1	1				1				2			1	4				3			1	7		
		%	14.9	14.0	8.0	4.0				8.0				6.0			8.0	5.0				9.0			10.0	7.0		
8	Managers, Officials, etc. (not farm)	N	103	206	3	3				1				4			3	8				1				9		
		%	9.6	12.5	24.0	12.0				8.0				12.0			25.0	11.0				3.0				9.0		
9	Prof., tech. & kindred workers	N	234	359	2	2								6			2	8				3			3	11		
		%	21.8	21.8	16.	8.0								19.0			16.0	11.0				9.0			30.0	11.0		
	TOTAL	N	1075		12	25				12				31			12	68				31			10	99		
		%			97	100				97				97%			98	95%				96			100	99		

tinuous pupil progress and occurs disproportionally more frequently with children from homes in the lower socio-economic categories. Again, acceleration, when occuring is virtually a monopoly of children from homes in the upper portion of the socio-economic distribution. But more importantly, acceleration, while it occurs only limitedly in nongraded programs, is a phenomenon of these programs for it is alien to the graded schools. So, minimally perhaps, the goal of differentiated progress for children is realized in nongraded schools though it is restricted disproportionally to children from one end of the socio-economic continuum.

Contrasting the proportions of students with decelerated progress by socio-economic category with the proportions of children in these categories for the study population mutes the inequalities noted above. By and large, the distribution of students with decelerated progress through these categories approximates rather closely the distribution of students in these categories for the study population in general. There is a tendency for graded schools to retain a somewhat greater proportion of children from the lower socio-economic categories than nongraded schools, but this difference, generally, tends to be somewhat benign. However, stark inequalities are apparent when a like procedure is employed for students with accelerated progress. Such progress concentrates among students from homes in the upper socio-economic classifications. Here, too, there is strong reason to suspect socio-economic status associates with the type of progress a child makes through the curriculums of graded and nongraded schools.

Community differences between schools with nongraded programs and those without accentuate the influence socio-economic factors exert on the provisions made for continuous pupil progress. Typically, nongraded schools flourish in communities with concentrations of students from homes in the upper socio-economic categories. Apparently, the few students in these programs from homes in the lower socio-economic classes have a disproportionately greater chance for decelerated progress through the primary years of school than their classmates from homes in the upper socio-economic strata. This is typical of the instructional inequity truly nongraded programs are destined to overcome. In such programs, socio-economic status is irrelevant to continuous learning progress because instruction, not time, is modified to meet the current learning needs of the child regardless of socio-economic origins.

Sex Differences

Since most children progress without skips or lags through the primary meaningful contrasts between the accomplishments of boys and girls with normal and non-normal progress are impossible. This, in and of itself, hints that in most cases sex differences may exert minimal influence on the provisions made for continuous progress and directs the analysis to a study of sex differences among students with non-normal progress.

Here the type of progress made is virtually all of a kind, deceleration. In the few instances of accelerated progress reported, a slightly greater number of boys than girls complete the primary in less than three years.

But, again, the difference is so minor that for all intent and purposes one can conclude that no real differences exist in the number of boys and girls accelerating through the primary. A very different conclusion emerges from the data on decelerated progress. Here sex apparently makes a definite difference. Only once was the number of girls with decelerated progress greater than the number of boys! In all other instances, at all primary levels, in nearly all types of programs - graded and nongraded - the number of boys with decelerated progress is two to three times larger than that for the girls. Evidently, when

TABLE 3.23

CONTINUOUS PUPIL PROGRESS ON SEX DIFFERENCES IN GRADED AND NONGRADED SCHOOLS

		A		B		C		EXP. TOTAL		CONTROL		GRAND TOTAL	
		1964-65	1965-66	1964-65	1965-66	1964-65	1965-66	1964-65	1965-66	1964-65	1965-66	1964-65	1965-66
CLASS 1													
Boys	Acc.	12						12				12	
	Dec.	3		1		17	7	21	7	10	11	31	18
Girls	Acc.	2						2				2	
	Dec.	5			1	6	5	11	6	10	6	21	12
Un-known	Acc.												
	Dec.									2	6	2	6
CLASS 2													
Boys	Acc.	1					1	1	1		1	1	
	Dec.	7	25	3	2	14	11	24	38	13	11	37	49
Girls	Acc.												
	Deć.	1	7			6	3	7	10	7	4	14	14
Un-known	Acc.												
	Dec.									1	1	1	1
CLASS 3													
Boys	Acc.												
	Dec.	16	5	5	5	17	13	38	23	10	12	48	35
Girls	Acc.												
	Dec.	5	2	1	1	7	4	13	7	2	3	15	10
Un-known	Acc.												
	Dec.												
TOTAL PRIMARY (Classes 1-3)													
Boys	Acc.	13					1	13	1		1	13	
	Dec.	26	30	9	7	48	31	83	68	33	34	116	102
Girls	Acc.	2						2				2	
	Dec.	11	9	1	2	19	12	31	23	19	13	50	36
Un-known	Acc.												
	Dec.									3	7	3	7

it comes to insuring continuous progress by slowing down the pace of instruction boys are more likely than girls to have this type of accomodation made for them. Considering the enrollments in the types of programs studied, only B-type programs appear to have low percentages of students with non-normal progress.

Generally, though, it is safe to conclude that sex exerts a minor influence on the continuous progress made by most students except in cases of non-normal progress. Here boys are considerably more prone than girls to have their progress through the primary decelerated to insure their continuous progress through the school's curriculum.

This, obviously, is not a revolutionary discovery. It merely confirms what has been known; greatest percentage of boys spending more than the normal number of years in the primary than girls. This, however, typically describes conditions in graded schools, a condition the nongraded school is instituted to ameliorate. If the data on sex and continuous progress reveal anything it is that this goal has not been reached by contemporary nongraded efforts.

If sex differences truly associate with early school success and nongraded schools are to adapt instructional offerings to accommodate for these peculiarities then the nongraded schools of the future must develop procedures markedly different from those in vogue in contemporary nongraded schools for accommodating individual differences.

Teachers

Certainly, as defined here, continuous progress is not a self-initiated, self-imposed student act. Rather it mirrors teacher judgement about the attainments of students when measured against some unspecified standard for accomplishment. To gauge the influence predisposing factors capable of shaping these judgements may exert, correlations between the provisions made for continuous student progress by teachers and selected teacher characteristics presumed capable of influencing these judgements were run. These included: the teacher's knowledge and acceptance of the principles of nongrading; classroom teaching performance and selected demographic characteristics. The coefficients between these characteristics and the provisions made for continuous student progress are reported in Table 3.24.

The coefficients strongly suggest the provisions made for continuous student progress by teachers is independent of the teacher characteristics included in this analyses. Most of the coefficients are low, erratic, insignificant and ad hoc occurrences since no coefficients were significant for both administrations. Furthermore, the relation between the teacher factors included and the provisions made for continuous student progress is no more noteworthy for nongraded schools, no matter how organized, than graded schools. Lastly, no series of teacher variables regularly and consistantly correlate with the provisions made by them for continuous student progress.

While the relation between teacher characteristics and continuous student progress is virtually nonexistant, dim patterns of associations emerge. Minimal relations exist between knowledge and acceptance of the nongraded school's position on organization for instruction and the provisions made for continuous student progress. Similarly, a nebulous and inverse relation exists between teaching experience, at all elementary levels, and the provisions made for continuous progress. Apparently beginning teachers are somewhat more predisposed to provide for continuous student progress than their more veteran colleague.

But, again, this is highly impressionistic, almost intuitive, reading of the data. Perhaps the resulting associations are even too slender to sustain these conclusions completely. Indeed, it is difficult to attribute the type of progress provided for students to any discernable teacher characteristic.

TABLE 3.24

CONTINUOUS PUPIL PROGRESS AND TEACHER CHARACTERISTICS

		Provisions Made For Continuous Pupil Progress									
		1964-1965					1965-1966				
		A	B	C	All NGS	D	A	B	C	All NGS	D
Knowledge of Principles of NG School	Individual Diff.	.023	.044	.231	.089	.016	.129	.088	.122	.122	.088
	Pupil Eval.& Prog.	.006	.101	.131	.047	.212	.090	.003	.147	-.037	.122
	Curriculum	.094	.130	.148	.097	-.075	.153	.171	.089	.003	.192
	Org. for Instr.	.027	.032	.312*	.113	.233	.328*	.234	-.048	.079	.461**
	Instr. Methods	.053	.083	.105	.064	.237	.175	.008	-.106	.021	.209
Accept. of Principles of NG School	Individual Diff.	.073	-.159	.000	.034	.182	.018	-.380	.091	.038	.024
	Pupil Eval.& Prog.	-.002	-.185	.085	.036	.051	.005	.002	.045	.022	.174
	Curriculum	.042	.037	-.027	.025	.018	.132	-.201	.062	.095	.056
	Org. for Instr.	.280	-.168	-.012	.161*	.174	-.020	-.308	-.007	-.028	.219
	Instr. Methods	.147	-.211	-.035	.050	.086	-.023	-.156	.062	.023	.004
	Total	.142	-.194	-.039	.057	.102	..020	-.240	.098	.053	.117
	Classroom Tchr. Perf.	-.037	.208	-.257	-.045	-.021	.046	-.209	-.064	.015	-.069
Teacher Demographic Characteristics	Age	-.335*	.196	-.339**	-.293**	.005	.223	.094	-.057	.069	-.068
	Grade Level	-.152	.010	.087	.044	.254	-.163	.112	.068	.047	.054
	Yrs. Teaching in Graded Primary	-.338*	-.080	-.233	-.275**	.250	.163	-.351	-.065	.015	.153
	Yrs. Teaching in NG Primary	-.216	-.157	-.439**	-.194	-.488	.097	.024	.084	.091	-.079
	Total Primary Teaching Exp.	-.339*	-.123	-.257	-.286**	.121	.166	-.322	-.058	.026	.102
	Yrs. Teaching in Intermed. Graded	-.343*	.178	-.045	-.189*	.094	.134	.274	.031	.095	-.023
	Yrs. Teaching in Secondary School	.000	.103	-.029	.039	.119	.000	.147	.060	.049	-.240
	Total Teaching Experience	-.451*	.038	-.255	-.335**	.256	.213	.036	-.048	.069	.154
	Education	-.011	-.098	-.202	.043	-.060	.056	.154	-.040	.020	-.042
	Area of Prep.	.027	-.261	-.202	-.038	-.189	-.107	-.556**	.085	-.014	-.191

* = .05%
** = .01%

TEACHER FACTORS

Teachers, traditionally identified as the essential element for educational improvement, were studied for their receptiveness and responsiveness to nongrading. Since teaching is a deliberate, rational act, antecedents shape it. Acceptance of the tenets of nongrading, for example, has this capacity. But, this presumes knowledge of these very principles. Therefore, the teachers' knowledge and acceptance of the principles of nongrading, measured by the Education Opinion Inventory, were crossed with their teaching performance, measured by Nongraded Primaries in Action. Additionally, pertinent professional background information was included as contributors to teaching performance. Typically these focused on area and length of teaching experience and preparation.

These data, too, were analyzed by type of nongraded programs (A,B,C), total nongraded group (A+B+C), graded groups (D) and total study population (TTL) for each year studied. Less than 10% of the resulting coefficients were statistically significant (135/1572) and most of these are extremely low and unstable. A minimal number, for example, of the associations tested were significant each time studied. This, rightfully, casts considerable suspicion on the authenticity of the significance reported. While all coefficients are in the Appendix, only the significant ones are reported and commented upon here. To do otherwise would be an unjustifiable intrusion on the reader's time and a breach of continuity with the study.

Classroom Teaching Performance

One conclusion looms from this study: knowledge of the teachings of the nongraded school on instruction has virtually no influence on instruction for none of the coefficients between knowledge of the principles of nongrading and classroom teaching performance were significant. Acceptance of these principles, on the other hand, associated strongly with instructional practices and supports the contention

TABLE 3.25

SIGNIFICANT CORRELATIONS BETWEEN TEACHER CLASSROOM PERFORMANCE, DEMOGRAPHIC CHARACTERISTICS AND KNOWLEDGE AND ACCEPTANCE OF THE PRINCIPLES OF THE NONGRADED SCHOOL.

					School Type			
			A	B	C	All Nongraded	D	All Schools
Teacher Characteristics		Age			.282			
		Grade Level		.617 .615		.270		.254
	Teaching Experience	Graded Primary				.489		.450
		Nongraded Primary	.546	.583	.272	.420		.475
		Total Primary		.572				
		Intermediate						
		Secondary School				.228	-.590	
		Total				.234		.207
	Education	Amount of Education			.308	.169		.230
		Area of Education				.229		
	ance	Individual Differences	.482				.506	.252 .159
		Pupil Evaluation & Progress	.467				.566	.167 .179
		Curriculum			.307			.318

TABLE 3.25 (continued)

Accept-	Organization for Instruction					.419	.237
	Instructional Methods	.306	.493			.644	.378 .165
	Total Acceptance	.455		.295	.274	.578	.434 .212
Knowledge of Principles of the Nongraded Schools	Individual Differences						
	Pupil Evaluation and Progress						
	Curriculum						
	Organization for Instruction						
	Instructional Methods						

Type Nongraded

A = self-contained, homogeneously grouped class, yearly teacher assignment
B = self-contained, heterogeneously graded class, teacher cycling
C = cross-class and/or grade, homogeneously grouped, flexibility of teachers
A+B+C = all types of nongraded programs combined
D = graded groups
TTL = total study population
* = .05%
** = .01%

Note: Correlations appearing over each other in a single cell are the correlations obtained on initial study and followup study.

that beliefs, not facts, alter behaviors. This observation, furthermore, has more pertinence for graded than nongraded schools since these coefficients are higher than those for the nongraded schools studied. Apparently the ideals of nongrading can be honored and observed in any school. When the above has been said, all that can be said about the influence knowledge and acceptance of the tenets of nongrading has for classroom instruction has been said.

Similarly, the relations between preparation for teaching and teaching are ephemeral at best. Learn to do by doing is an apt dictum for teachers wanting a nongraded instructional program for experience in nongraded primaries exhibited the most universally significant relation with classroom teaching performance for all types of nongraded programs. This summarized what can be said of the relation between preparation for teaching and teaching style.

Acceptance and Demographic Characteristics

The positive, though weak, correlations found between acceptance and classroom teaching performance justified further analysis. Essentially, we asked: since acceptance relates to performance, what factors relate with acceptance of the teachings of the nongraded school movement? Partial answers are obtained by crossing demographic characteristics and acceptance scores. Though the coefficients produced are low and erratic, too, some blurry patterns of associations emerge. First, acceptance of these teachings on Organization for Instruction and Pupil Evaluation and Progress are unrelated to teaching experience or preparation. Apparently, one's views on how to teach and how to evaluate the efficacy of this act are untouched by professional preparation and experience. Next, the relation between professional preparation and acceptance of the principles of nongrading is uneven and fallible. The strongest correlates center around teaching at the primary level and notably in nongraded primaries. This may explain the acceptance and acclaim nongrading has received at this level and the resistance to it encountered at higher levels. Further

TABLE 3.26

RELATION BETWEEN TEACHERS' ACCEPTANCE OF THE PRINCIPLES OF THE NONGRADED SCHOOL AND TEACHER DEMOGRAPHIC CHARACTERISTICS

	Teacher Demographic Characteristics	Teacher Acceptance of the Principles of the Nongraded School					Total Acceptance
		Individual Differences	Pupil Evaluation and Progress	Curriculum	Organization for Instruction	Instructional Methods	
	AGE	B= -.252 D= -.366 TTL= -.153	C= .247	C= .324 C= .522 A+B+C= .220	A= -.275	TTL= -.187	C= .374
	GRADE LEVEL			C= .305 A+B+C= .211 TTL= .191	A=-.307		
Teaching Experience	GRADED PRIMARY	B= .232 TTL= .193	A= -.295	A= -.305 C= .334 TTL- .314	A= -.352	A= -.274 A= -.394 TTL- -.255	TTL=-.183 A= -.379 A= -.289
	NONGRADED PRIMARY	A= .276	A= .366 TTL= .227	A+B+C= .284 D= .446		TTL- -.207	TTL= .239 TTL= .227 A= .301
	TOTAL PRIMARY	B= -.259 TTL= -.192		C= .338 A= -.277	A= -.331	TTL= -.238 A= -.356	TTL= -.164 A= -.324
	INTERMEDIATE	B= -.272 D= -.500			B= -.525 B= -.635	B= -.525 B= -.473	B= -.501
	SECONDARY SCHOOL	D= -.553	D= -.597	D= -.585	D= -.336 TTL= -.193	D= -.600	TTL= -.159 D= -.691
	TOTAL TEACHING EXPERIENCE	B= -.382 D= -.386 TTL= -.184 TTL= -.158			A+B+C= -.160 A= -.365	TTL= -.223 A= -.348 B= -.487	TTL= -.171 A= -.327 B= -.382
	AMOUNT OF EDUCATION	TTL= .178	D= .412	TTL= .164		C= .306	C= .327
	AREA OF EDUCATIONAL PREPARATION	B= .242		A+B+C= .228 A+B+C= .234 C= .248 TTL= .203	A+B+C= .161 D= -.458		A+B+C=.182

Type Nongraded

A = self-contained, homogeneously grouped class, yearly teacher assignment
B = self-contained, heterogeneously grouped class, teacher cycling
C = cross-class and/or grade, homogeneously grouped, flexible utilization of teachers
A+B+C = all types of nongraded programs combined
D = graded groups
TTL = total study population *=.05% **=.01%

support for this speculation comes from an examination of the coefficients associated with intermediate and secondary school teaching experience. They are negative, suggesting a rejection of these principles among teachers with secondary school and intermediate graded teaching experience. Possibly these findings were produced because education at the upper levels tends to stress the content more than the learner. But one must be cautioned against too great of a dependence on these findings simply because of the severe restriction among the number of teachers with secondary school teaching experience.

Knowledge and Demographic Characteristics

While the findings on acceptance and teaching performance suggested continued study of factors associated with acceptance, no such justification exists for further study of knowledge. It was done, in all honesty, because modern data processing methods made it less costly and more rapid to include rather than exclude these comparisons. The analysis, though, added little to the little that has been found and serves more to confirm the nebulousness of the associations already reported than present new ones. The obtained coefficients between knowledge of the principles of nongrading and professional preparation and experience are sporatic and undependable. However, they offer limited support to the findings already presented since experience teaching in nongraded primaries and knowledge of the tenets of nongrading associate while secondary school teaching and knowledge of these principles tend to disassociate.

Generally, however, here, as elsewhere in this study, the findings lack sharp definition. Hazy impressions emerge regarding the factors predisposing teachers to teach in accordance with the precepts of the nongraded school. Acceptance of the principles, for example, shows a somewhat unsystematic tendency to relate to classroom teaching performance. If, indeed, an association truly exists it appears to be circular for experience teaching nongraded primaries tended to show the most enduring relation with classroom teaching performance. Certainly under this arrangement one never knows which came first, the teaching or the theory.

TABLE 3.27

RELATION BETWEEN TEACHERS' KNOWLEDGE OF THE PRINCIPLES OF THE NONGRADED SCHOOL AND TEACHER DEMOGRAPHIC CHARACTERISTICS

Teacher Demographic Characteristics	Knowledge of the Teachings of the Nongraded School				
	Individual Difference	Pupil Evaluation and Progress	Curriculum	Organization for Instruction	Instructional Methods
AGE					
GRADE LEVEL			D=.411*	D=.358*	A=.292*
GRADED PRIMARY	B=.436*			A+B+C=.221**	
NONGRADED PRIMARY	A=.282* A+B+C=.179*			A+B+C=.159*	
TOTAL PRIMARY	B=.444* TTL=.185*	D=.416*		A+B+C=.213** TTL=.190*	
INTERMEDIATE			C=.325**		
SECONDARY SCHOOL		D=-.398*	D=-.396*		
TOTAL TEACHING EXPERIENCE				A=.297*	
AMOUNT OF EDUCATION	C=-.265* D=-.529**	D=-.429*	C=-.318** D=.206*		
AREA OF EDUCATIONAL PREPARATION				C=.324*	

Type Nongraded
A = self-contained, homogeneously grouped class, yearly teacher assignment
B = self-contained, heterogeneously grouped class, teacher cycling
C = cross-class and/or grade, homogeneously grouped, flexible utilization of teachers
A+B+C = all types of nongraded programs combined
D = graded groups
TTL = total study population
* = .05%
** = .01%

PRINCIPAL FACTORS

Analyses similar to those conducted for teachers were made for principals. The relation between their knowledge and acceptance of nongrading and administrative performance was studied. Here, as with teachers, correlations between these factors and selected professional background characteristics were run. These data, however, were amenable to additional analysis. Crossing them with comparable data for teachers provided estimates of the principal's influence in fostering with his staff knowledge and acceptance of the nongraded school and his ability to have these principles reflected in their daily teaching.

Knowledge, Acceptance and Performance

Study of the relation among the principals' knowledge and acceptance of the principles of the nongraded school and their administrative performance produced findings analogous to those for teachers. Most of the coefficients were low, insignificant and indiscriminate. As with teachers, these data suggest that accepting nongrading is independent of knowledge of it for all but one coefficient was insignificant. But, unlike teachers, neither acceptance nor knowledge of these principles associated well with performance. Apparently, factors other than the dictums of nongrading govern the principals' administrative activities. To be sure a few significant coefficients were obtained (5 of 144) but even these were one-time-only for they were significant for either the first or second administration, not both. Furthermore, these associations were patternless and random linkages adding to the belief that the obtained significances might well be spurious.

Principals' Influence on Teachers

The last logical series of interactions suggested by these data were the relation between principal variables and teacher variables. Specifically, what re-

TABLE 3.28

SIGNIFICANT CORRELATIONS AMONG PRINCIPALS' DEMOGRAPHIC CHARACTERISTICS, ADMINISTRATIVE PERFORMANCE, KNOWLEDGE OF PRINCIPLES OF NONGRAGED SCHOOL AND ACCEPTANCE OF PRINCIPLES OF NONGRADED SCHOOL

		Administrative Performance						Acceptance of Nongrading						Knowledge of Nongrading Principles					
		(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)
	Age										.578*								
Teaching	Primary	.511*				.525*									.602*				
	Intermediate	.503*	.668**			.783**									.722**	.665**	.499**	.549*	.645*
	Secondary		.523*																
Administrative	Preparation										.559*								
	Graded School										.567*								
	Nongraded School	.666**	.601**		.506*	.631**	.666**												
	Years										.507*				.501*	.614**			
Acceptance	Pupil Evaluation and Progress		.505*					.557**	.636**	.594**	.617**	.678**	.508*						
	Instructional Practices		.568*		.649**		.527*	.460*											
	Total Acceptance Score				.513*														

TABLE 3.28 (continued)

		Administrative Performance							Acceptance of Nongrading					Knowledge of Nongrading Principals					
		(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)
Teacher Knowledge of Nongrading Principles	Pupil Evaluation and Progress										.465*			.486*					
	Curriculum										.545*				.638**	.465*			.569*
	Organization for Instruction																		
	Instructional Methods										.459*								
	Total Knowledge Scores									.454*	.539*								
Teacher Classroom Performance	Identification of Individual Differences		.546*									.517*							
	Pacing Instruction		.518*	.487*															
	Adjusting Learning Time									.470*	.518*								
	Classroom Organization			.494*															
Principal Performance	Setting Goals											.560*			.693**				.512*
	Appraising Programs																		
	Total Administrative Performance																		
	Organization for Instruction																		

lation exists between a principal's knowledge and acceptance of nongrading and administrative performance and his teachers' knowledge and acceptance of nongrading and their classroom teaching? These analyses produced no arresting findings, for only 32 of 648 coefficients involved were significant and none of these replicated on further study.

About the only thing a principal's knowledge of nongrading seems capable of influencing is his teachers' knowledge of Pupil Evaluation and Progress. His acceptance of nongrading, too, has limited relevance for teacher knowledge or acceptance of nongrading. About the only way his acceptance of nongrading relates to his teachers' acceptance of it centers on Organization for Instruction. But perhaps the fibers of these joinings are not resiliant enough to withstand even the limited strain this interpretation places on them.

Finally, if principals' actions speak louder than their words about nongrading they go unheard of by teachers. Here few significant relations exist between his administrative performance and the staff's knowledge and acceptance of the principles of nongrading and classroom teaching. Perhaps previous estimates of the principal's influence on his staff have been overly generous for these data suggest he is virtually impotent in shaping the course of instruction within his school for his dictums and deeds apparently go unheeded by his teachers.

In many respects these are the most disheartening findings of the study for they underscore the futility of the _deus ex machina_ mind-set dictating contemporary efforts at improving education. Certainly the advisability of relentless searches for "the right man" to nongrade a school must be questioned. At best the legitimacy of the indicators traditionally guiding such searches (age, education, experience, etc.) have been generously overestimated. They are fallible predictors which give virtually no cues to the person's ability to replace petrified, graded-school attitudes towards instruction and learning with a nongraded outlook.

For despite ones will to believe differently, the principal, as the school's chief instructional leader, is virtually powerless in altering its instructional practices. At about this point it is common to speculate that good administrators, like good teachers, are born, not made, and the ingredients of their greatness are unmeasurable. This is a comforting observation but more appropriate to metaphysical speculation than empirical inquiry, and, is a markedly unserviceable observation for persons seeking a principal to administer their nongraded school.

Generally, principals can manipulate classroom organizational arrangements, grouping practices and staffing patterns, but here his influence ends. Many factors account for this. One assumes principals have the unencumbered administrative autonomy needed to work changes in the school's instructional program. They do not. They are constantly warring a subtle conspiracy of regulatory and stabilizing forces intent on preserving the status quo. Community mistrust of nongrading, board of education restrictiveness and faculty inertia cunningly blend to limit their effectiveness as change agents. Alone, these stunt the effectiveness of all but the most inspired, most creative and most dauntless principals.

But most schools can not realistically hope to employ men of this stature. They are rare. They must depend on the efforts of able, well-intentioned practitioners competent at transplanting, not creating, established procedures capable of nongrading a school's instructional program. Herein lies the rub. There are no such valid models for him to emulate. There are no proven instructional modes for him to give his staff for imitation. Until they emerge it is highly unlikely that nongrading will be realized to any measurable quantity in all but the most highly innovative elementary schools.

DURATION OF EFFECT

Assuming nongrading induced discernible differences in the achievement and adjustment of children in these programs, follow-up studies were planned to ascertain the permanence of these increments. The reader cannot have come this far through the report without realizing the needed gains in achievement and adjustment between students in graded and nongraded programs did not materialize. Succinctly, the available data will simply not support such an analysis.

While this analysis could not be performed here and now, if the state of the art of nongrading develops to the point where discernible differences in student achievement and adjustment are forthcoming it is important to subject them to longitudinal study to ascertain their durability.

If the differences occurring are ephemeral one must know this and judge if the time, energy and cost required to produce such transistory gains is warranted.

APPENDIX

TABLE 4.01

DIFFERENCES BETWEEN PRINCIPALS OF NONGRADED AND GRADED SCHOOLS IN THE PERFORMANCE OF ADMINISTRATIVE TASKS ASSOCIATED WITH A NONGRADED INSTRUCTIONAL PROGRAM

Individual Differences

Program Operation	First Administration			School Type	Second Administration		
	A	B	C		A	B	C
Involving People	33.34	33.33	33.33	Nongraded	61.90	14.29	23.81
	55.56	44.44	0	Graded	88.89	11.11	0
	66.67	33.33	0	Both	75.00	4.17	20.83
Making Policy	54.17	12.50	33.33	Nongraded	75.00	7.14	17.86
	100.00	0	0	Graded	91.67	8.33	0
	68.75	0	31.25	Both	59.38	6.25	34.37
Determining Role	27.78	50.00	22.22	Nongraded	52.38	28.57	19.05
	55.56	44.44	0	Graded	100.00	0	0
	45.84	45.83	8.33	Both	79.17	8.33	12.50
Setting Goals	63.89	13.89	22.22	Nongraded	69.05	2.38	28.57
	100.00	0	0	Graded	83.33	11.11	5.56
	72.92	0	27.08	Both	62.50	2.08	35.42
Appraising Program	91.67	0	8.33	Nongraded	100.00	0	0
	100.00	0	0	Graded	100.00	0	0
	93.75	0	6.25	Both	87.50	6.25	6.25

TABLE 4.01 (continued)

Pupil Progress

Program Operation	First Administration				Second Administration		
	A	B	C	School Type	A	B	C
Involving People	83.33	11.11	5.56	Nongraded	90.48	0	9.52
	66.67	33.33	0	Graded	77.78	11.11	11.11
	62.50	20.83	16.67	Both	66.66	16.67	16.67
Making Policy	69.45	19.44	11.11	Nongraded	78.57	9.52	11.91
	77.78	22.22	0	Graded	83.33	5.55	11.12
	54.17	20.83	25.00	Both	64.58	6.26	29.16
Determining Role	16.66	83.34	0	Nongraded	85.71	4.76	9.53
	22.22	77.78	0	Graded	88.88	11.12	0
	12.50	70.84	16.66	Both	62.50	25.00	12.50
Setting Goals	57.41	20.37	22.22	Nongraded	61.90	12.70	25.40
	62.96	22.22	14.82	Graded	74.07	14.81	11.12
	66.66	5.56	27.78	Both	54.16	5.56	40.28
Appraising Program	91.67	0	8.33	Nongraded	71.43	7.14	21.43
	100.00	0	0	Graded	66.66	16.67	16.67
	100.00	0	0	Both	81.25	6.25	12.50

TABLE 4.01 (continued)

Evaluation

Program Operation	First Administration			School Type	Second Administration		
	A	B	C		A	B	C
Involving People	69.05	23.81	7.14	Nongraded	73.47	2.04	24.49
	76.19	23.81	0	Graded	80.95	14.29	4.76
	71.43	17.86	10.71	Both	82.15	7.14	10.71
Making Policy	55.55	25.93	18.52	Nongraded	68.26	11.11	20.63
	59.26	33.33	7.41	Graded	77.78	18.52	3.70
	48.61	27.78	23.61	Both	59.72	13.89	26.39
Determining Role	38.89	50.00	11.11	Nongraded	80.95	19.05	0
	55.56	33.33	11.11	Graded	100.00	0	0
	41.67	37.50	20.83	Both	79.16	4.17	16.67
Setting Goals	48.80	38.10	13.10	Nongraded	50.00	31.63	18.37
	47.62	40.48	11.90	Graded	57.15	35.71	7.14
	58.03	20.54	21.43	Both	41.07	22.32	36.61
Appraising Program	94.44	0	5.56	Nongraded	88.10	2.38	9.52
	94.44	0	5.56	Graded	88.89	0	11.11
	85.42	8.33	6.25	Both	83.33	6.25	10.42

TABLE 4.01 (continued)

Curriculum

Program Operation	First Administration			School Type	Second Administration		
	A	B	C		A	B	C
Involving People	83.33	13.89	2.78	Nongraded	90.24	4.88	4.88
	66.67	33.33	0	Graded	83.33	16.67	0
	60.41	35.42	4.17	Both	79.16	4.17	16.67
Making Policy	77.08	10.42	12.50	Nongraded	80.36	3.57	16.07
	54.17	37.50	8.33	Graded	70.83	25.00	4.17
	50.00	20.31	29.69	Both	57.81	12.50	29.69
Determining Role	62.50	37.50	0	Nongraded	85.72	10.71	3.57
	33.33	66.67	0	Graded	58.33	41.67	0
	56.25	37.50	6.25	Both	65.62	18.75	15.63
Setting Goals	67.50	20.83	11.67	Nongraded	62.86	20.71	16.43
	55.00	36.67	8.33	Graded	50.00	45.00	5.00
	54.38	22.50	23.12	Both	53.75	21.88	24.37
Appraising Program	95.24	2.38	2.38	Nongraded	97.96	0	2.04
	80.95	14.29	4.76	Graded	76.19	0	23.81
	82.14	8.93	8.93	Both	82.14	5.36	12.50

TABLE 4.01 (continued)

Instruction

Program Operation	First Administration			School Type	Second Administration		
	A	B	C		A	B	C
Involving People	61.11	11.11	27.78	Nongraded	76.19	4.76	19.05
	77.78	11.11	11.11	Graded	66.67	0	33.33
	66.67	20.83	12.50	Both	79.17	4.17	16.67
Making Policy	80.00	3.33	16.67	Nongraded	75.72	7.14	17.14
	86.67	13.33	0	Graded	70.00	20.00	10.00
	61.25	15.00	23.75	Both	47.50	6.25	46.25
Determining Role	35.42	50.00	14.58	Nongraded	60.71	17.86	21.43
	33.34	58.33	8.33	Graded	79.17	12.50	8.33
	29.68	46.88	23.44	Both	46.87	10.94	42.19
Setting Goals	60.72	23.80	15.48	Nongraded	76.53	15.31	8.16
	52.38	40.48	7.14	Graded	69.05	21.43	9.52
	58.93	11.61	29.46	Both	41.07	14.29	44.64
Appraising Program	100.00	0	0	Nongraded	95.92	2.04	2.04
	100.00	0	0	Graded	100.00	0	0
	92.86	0	7.14	Both	83.93	8.93	7.14

TABLE 4.01 (continued)

Organization for Learning

Program Operation	First Administration			School Type	Second Administration		
	A	B	C		A	B	C
Involving People	54.17	16.66	29.17	Nongraded	50.00	14.29	35.71
	83.33	16.67	0	Graded	91.67	8.33	0
	59.37	12.50	28.13	Both	68.75	6.25	25.00
Making Policy	62.50	4.17	33.33	Nongraded	42.85	21.44	35.71
	91.67	0	8.33	Graded	91.67	8.33	0
	56.24	3.13	40.63	Both	46.87	9.38	43.75
Determining Role	16.67	50.00	33.33	Nongraded	38.10	23.80	38.10
	22.22	77.78	0	Graded	77.78	22.22	0
	41.67	25.00	33.33	Both	58.34	8.33	33.33
Setting Goals	52.39	11.90	35.71	Nongraded	69.39	6.12	24.49
	85.72	4.76	9.52	Graded	66.66	14.29	19.05
	50.00	8.93	41.07	Both	35.71	12.50	51.79
Appraising Program	94.44	0	5.56	Nongraded	76.19	7.14	16.67
	100.00	0	0	Graded	100.00	0	0
	81.25	4.17	14.58	Both	70.83	6.25	22.92

TABLE 4.02

ANALYSES OF DIFFERENCES IN STUDENT ACHIEVEMENT IN GRADED AND NONGRADED CLASSES

READING

WORD KNOWLEDGE

1 to 2 Year

	1964-1965						1965-1966					
	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	57.17	3	19.06	.35	3	.12	20.48	3	6.83	.78	3	.26
Error	487.92	30	16.26	4.95	30	.17	520.64	70	7.44	10.20	70	.15
Total	545.09	33		5.30	33		541.11	73		10.98	73	
	F = 1.17			F = .71			F = .92			F = 1.78		

WORD DISCRIMINATION

1 to 2 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	40.29	3	13.43	.18	3	.06	26.49	3	8.83	1.04	3	.35
Error	427.70	30	14.26	5.98	30	.20	884.84	70	12.64	9.46	70	.14
Total	467.98	33		6.17	33		911.33	73		10.49	73	
	F = .94			F = .31			F = .70			F = 2.56		

READING

1 to 2 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Scource	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	106.113	3	35.37	.25	3	.08	131.78	3	43.93	.91	3	.30
Error	1728.24	29	59.59	11.18	30	.37	3337.95	70	47.69	19.18	70	.27
Total	1834.35	32		11.42	33		3469.73	73		20.09	73	
	F = .59			F = .22			F = .92			F = 1.10		

ARITHMETIC

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

1 to 2 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	39.51	3	13.17	.16	3	.05	41.79	3	13.93	.06	3	.02
Error	411.61	30	13.72	1.38	30	.05	1451.04	70	20.73	3.12	70	.04
Total	451.12	33		1.54	33		1492.83	73		3.17	73	
	F = .96			F = 1.14			F = .67			F = .42		

TABLE 4.02 (continued)

READING

WORD KNOWLEDGE

2 to 3 Year

	1964-1965						1965-1966					
	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	18.73	3	6.24	.23	3	.07	36.87	3	12.29	.53	3	.18
Error	391.38	66	5.93	5.86	66	.08	503.90	69	7.30	12.73	69	.18
Total	410.11	69		6.09	69		540.77	72		13.26	72	
	F = 1.05			F = .87			F = 1.68			F = .96		

WORD DISCRIMINATION

2 to 3 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	11.90	3	3.97	.15	3	.05	8.09	3	2.70	.03	3	.01
Error	209.45	66	3.17	2.84	66	.04	438.20	69	6.35	7.35	69	.10
Total	221.35	69		2.99	69		446.28	72		7.38	72	
	F = 1.25			F = 1.20			F = .42			F = 9.65		

READING

2 to 3 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	40.85	3	13.62	.39	3	.13	64.07	3	21.36	.37	3	.12
Error	997.60	66	15.12	5.57	66	.08	1498.89	69	21.72	16.99	69	.25
Total	1038.45	69		5.96	69		1562.96	72		17.36	72	
	F = .90			F = 1.55			F = .98			F = .50		

ARITHMETIC

ARITHMETIC COMPUTATION

2 to 3 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	223.23	3	74.41	97.61	3	32.54	241.4	3	80.47	89.28	3	29.76
Error	1240.22	66	18.79	574.39	66	8.70	1628.14	69	23.60	494.82	69	7.17
Total	1463.45	69		672	69		1869.54	72		584.10	72	
	F = 3.96*			F = 3.74*			F = 3.41*			F = 4.15**		

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Score	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	162.81	3	54.27	118.72	3	39.57	79.63	3	26.54	.65	3	.21
Error	2092.65	66	31.71	341.02	66	5.17	1637.28	69	23.73	7.77	70	.11
Total	2255.46	69		459.74	69		1716.91	72		8.43	73	
	F = 1.71			F = 7.66**			F = 1.12			F = 1.95		

TABLE 4.02 (continued)

READING

WORD KNOWLEDGE

3 to 4 Year

	1964-1965						1965-1966					
	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	17.34	3	5.78	.29	3	.10	32.99	3	10.99	.39	3	.13
Error	761.56	75	10.15	6.56	73	.09	398.05	51	7.80	7.68	51	.15
Total	778.9	78		6.85	76		431.04	54		8.07	54	
	F = .57			F = 1.07			F = 1.41			F = .86		

WORD DISCRIMINATION

3 to 4 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	25.47	3	8.49	.14	3	.05	20.63	3	6.88	.32	3	.11
Error	348.06	74	4.70	5.30	74	.07	444.89	51	8.72	6.61	51	.13
Total	373.53	77		5.45	77		465.53	54		6.93	54	
	F = 1.81			F = .65			F = .79			F = .83		

READING

3 to 4 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	12.06	3	4.02	.73	3	.24	14.04	3	4.68	.28	3	.09
Error	345.99	74	4.68	10.59	75	.14	511.75	50	10.24	26.58	50	.53
Total	358.05	77		11.32	78		525.78	53		26.87	53	
	F = .86			F = 1.72			F = .46			F = .18		

ARITHMETIC

ARITHMETIC COMPUTATION

3 to 4 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	154.28	3	51.43	78.22	3	26.07	417.54	3	139.18	463.49	3	154.50
Error	1039.38	75	13.86	625.48	75	8.34	742.69	50	14.85	1282.62	50	25.65
Total	1193.66	78		703.70	78		1160.23	53		1746.11	53	
	F = 3.71*			F = 3.13*			F = 9.37**			F = 6.02**		

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Raw Score			Grade Equivalent			Raw Score			Grade Equivalent		
Source	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	22.34	3	7.45	.26	3	.09	41.41	3	13.80	.42	3	.14
Error	477.39	75	6.37	8.83	75	.12	281.21	50	5.62	9.73	50	.19
Total	499.73	78		9.08	78		322.63	53		10.14	53	
	F = 1.17			F = .72			F = 2.45			F = .72		

TABLE 4.02 (continued)

READING

4 to 5 Year

WORD KNOWLEDGE

1964-1965 1965-1966

Source	Raw Score			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	16.10	3	5.37	78.99	3	26.26
Error	582.76	66	8.83	2923.97	66	44.30
Total	598.86	69		3002.76	69	
	F = .61			F = .59		

READING 4 to 5 Year

Source	Raw Score			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	44.41	3	14.80	.93	3	.31
Error	420.7	66	6.37	22.84	66	.35
Total	465.11	69		23.77	69	
	F = 2.32			F = .90		

ARITHMETIC

ARITHMETIC COMPUTATION 4 to 5 Year

Source	Raw Score			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	1100.07	3	366.69	.68	3	.23
Error	1082.62	66	16.40	31.49	66	.48
Total	2182.69	69		32.17	69	
	F = 22.35**			F = .48		

ARITHMETIC PROBLEM SOLVING AND CONCEPTS 4 to 5 Year

Source	Raw Score			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Between	192.09	3	64.03	.47	3	.16
Error	646.97	66	9.80	8.50	66	.13
Total	839.06	69		8.97	69	
	F = 6.53**			F = 1.21		

TABLE 4.03

ANALYSES OF DIFFERENCES IN STUDENT ADJUSTMENT IN GRADED AND NONGRADED CLASSES

Adjustment of: Pupil to School

3 to 4 Year

	1964-1965			1965-1966		
Source	S.S.	D.F.	M.S.	S.S.	D.F.	M.S.
Between	.93	3	.31	2.50	3	.83
Error	92.90	69	1.35	50.38	72	.70
Total	93.83	72		52.88	75	
	F = .23			F = 1.19		

Adjustment of: Pupil to Classmates

Source	S.S.	D.F.	M.S.	S.S.	D.F.	M.S.
Between	10.15	3	3.38	2.40	3	.80
Error	100.71	69	1.46	82.98	74	1.12
Total	110.86	72		85.37	77	
	F = 2.32			F = .72		

Adjustment of: Pupil to Teacher

Source	S.S.	D.F.	M.S.	S.S.	D.F.	M.S.
Between	4.00	3	1.33	10.50	3	3.50
Error	81.58	69	1.18	122.51	74	1.66
Total	85.58	72		133.01	77	
	F = 1.13			F = 2.11		

Adjustment of: Pupil to Home

Source	S.S.	D.F.	M.S.	S.S.	D.F.	M.S.
Between	1.61	3	.54	16.56	3	5.52
Error	195.03	69	2.83	158.04	72	2.20
Total	196.64	72		174.60	75	
	F = .19			F = 2.51		

Adjustment of: Pupil to Self

Source	S.S.	D.F.	M.S.	S.S.	D.F.	M.S.
Between	9.45	3	3.15	4.63	3	1.54
Error	219.62	69	3.18	254.70	73	3.49
Total	229.07	72		259.33	76	
	F = .99			F = .44		

Total Adjustment

Source	S.S.	D.F.	M.S.	S.S.	D.F.	M.S.
Between	38.61	3	12.87	87.29	3	29.10
Error	2002.28	69	29.02	1672.31	74	22.60
Total	2040.89	72		1759.60	77	
	F = .44			F = 1.29		

TABLE 4.03 (continued)

Adjustment of: Pupil to School

4 to 5 Year

Source	S.S.	D.F.	M.S.
	1965-1966		
Between	5.93	3	1.98
Error	49.01	63	.78
Total	54.94	66	

F = 2.54

Adjustment of: Pupil to Classmates

Source	S.S.	D.F.	M.S.
Between	4.47	3	1.49
Error	67.55	61	1.11
Total	72.02	64	

F = 1.34

Adjustment of: Pupil to Teacher

Source	S.S.	D.F.	M.S.
Between	4.13	3	1.38
Error	67.00	64	1.05
Total	71.13	67	

F = 1.31

Adjustment of: Pupil to Home

Source	S.S.	D.F.	M.S.
Between	12.44	3	4.15
Error	93.97	62	1.52
Total	106.41	65	

F = 2.73

Adjustment of: Pupil to Self

Source	S.S.	D.F.	M.S.
Between	21.59	3	7.20
Error	104.66	64	1.64
Total	126.25	67	

F = 4.40**

Total Adjustment

Source	S.S.	D.F.	M.S.
Between	149.30	3	49.77
Error	987.51	64	15.43
Total	1136.81	67	

F = 3.22*

* = .05%
** = .01%

TABLE 4.04

STUDENT, TEACHER AND PRINCIPAL FACTORS INFLUENCE ON STUDENT ACHIEVEMENT AND ADJUSTMENT

READING ACHIEVEMENT

WORD KNOWLEDGE

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.43	1	4.43	11.38	3	3.79
Columns	11.83	3	3.95	19.77	3	6.59
Error	67.98	3	22.66	51.48	9	5.72
Total	84.24	7		82.63	15	
	F = .20		F = .17	F = .66		F = 1.15

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	9.16	1	9.16	7.81	3	2.60
Columns	13.60	3	4.53	28.93	3	9.64
Error	49.66	3	16.55	76.28	9	8.48
Total	72.42	7		113.02	15	
	F = .55		F = .27	F = .31		F = 1.14

TABLE 4.04 (continued)

READING ACHIEVEMENT

READING

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	14.52	1	14.53	7.31	3	2.44
Columns	3.55	3	1.18	15.95	3	5.32
Error	151.90	3	50.63	94.88	9	10.54
Total	169.97	7		118.14	15	
	F = .29		F = .02	F = .23		F = .50

ARITHMETIC TOTAL

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.83	1	.83	26.85	3	8.95
Columns	22.09	3	7.36	2.15	3	.72
Error	2.00	3	.67	34.53	9	3.84
Total	24.92	7		63.53	15	
	F = 1.24		F = 11.04*	F = 2.33		F = .19

TABLE 4.04 (continued)

READING ACHIEVEMENT

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.64	1	.64	25.43	3	8.48
Columns	9.38	3	3.13	22.24	3	7.41
Error	4.46	3	1.49	89.68	9	9.96
Total	14.48	7		137.35	15	
	F = .43		F = 2.10	F = .85		F = .74

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.10	1	.10	3.30	3	1.10
Columns	.87	3	.29	3.54	3	1.18
Error	.83	3	.28	22.50	9	2.50
Total	1.80	7		29.34	15	
	F = .36		F = 1.04	F = .44		F = .47

READING

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.70	1	.70	64.20	3	21.40
Columns	2.54	3	.85	9.29	3	3.10
Error	3.30	3	1.10	107.66	9	11.96
Total	6.54	7		181.15	15	
	F = .63		F = .77	F = 1.79		F = .26

TABLE 4.04(continued)

READING ACHIEVEMENT

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.03	1	4.03	3.54	3	1.18
Columns	10.55	3	3.52	25.09	3	8.36
Error	.60	3	.20	14.24	9	1.58
Total	15.18	7		42.87	15	
	F = 20.22*		F = 17.64*	F = .75		F = 5.28*

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.80	1	.80	7.55	3	2.52
Columns	15.09	3	5.03	5.88	3	1.96
Error	.82	3	.27	10.49	9	1.17
Total	16.71	7		23.92	15	
	F = 2.93		F = 18.39*	F = 2.16		F = 1.68

TABLE 4.04 (continued)

READING ACHIEVEMENT

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	9.36	3	3.12	31.13	3	10.38
Columns	17.38	3	5.79	4.41	3	1.47
Error	31.00	9	3.44	46.32	9	5.15
Total	57.74	15		81.86	15	
	F = .91		F = 1.68	F = 2.02		F = .29

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.70	3	.90	13.64	3	4.55
Columns	12.30	3	4.10	1.60	3	.53
Error	16.70	9	1.86	14.23	9	1.58
Total	31.70	15		29.47	15	
	F = .48		F = 2.21	F = 2.87		F = .34

3 to 4 Year

READING

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	17.19	3	5.73	8.64	3	2.88
Columns	17.59	3	5.86	7.71	3	2.57
Error	59.04	9	6.56	45.81	9	5.09
Total	93.82	15		62.16	15	
	F = .87		F = .89	F = .57		F = .51

TABLE 4.04 (continued)

READING ACHIEVEMENT

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	13.62	3	4.54	5.07	3	1.69
Columns	38.07	3	12.69	108.03	3	36.01
Error	26.70	9	2.97	101.13	9	11.24
Total	78.39	15		214.23	15	
	F = 1.53		F = 4.28*	F = .15		F = 3.20

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.95	3	1.98	15.27	3	5.09
Columns	15.33	3	5.11	8.78	3	2.93
Error	25.30	9	2.81	26.99	9	3.00
Total	46.58	15		51.04	15	
	F = .71		F = 1.82	F = 1.70		F = .98

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	38.03	3	12.68	13.09	3	4.36
Columns	14.11	3	4.70	25.10	3	8.37
Error	40.46	9	4.50	53.69	9	5.97
Total	92.60	15		91.88	15	
	F = 2.82		F = 1.05	F = .73		F = 1.40

TABLE 4.04 (continued)

READING ACHIEVEMENT

4 to 5 Year

WORD KNOWLEDGE

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	29.05	3	9.68
Columns	33.43	3	11.14
Error	168.42	9	18.71
Total	230.9	15	
	F = .52		F = .60

4 to 5 Year

READING

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	20.58	3	6.86
Columns	104.72	3	34.91
Error	63.69	9	7.08
Total	188.99	15	
	F = .97		F = 4.93*

TABLE 4.04 (continued)

READING ACHIEVEMENT

ARITHMETIC COMPUTATION

4 to 5 Year

1964-1965

1965-1966

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	12.52	3	4.17
Columns	55.27	3	18.42
Error	183.63	9	20.40
Total	251.42	15	
	F = .20		F = .90

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	8.56	3	2.85
Columns	22.61	3	7.54
Error	5.94	9	.66
Total	37.11	15	
	F = 4.32		F = 11.43**

TOTAL ADJUSTMENT SCORE

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	10.57	3	3.52
Columns	16.65	3	5.55
Error	61.61	9	6.85
Total	88.83	15	
	F = .51		F = .81

TABLE 4.04 (continued)

ARITHMETIC ACHIEVEMENT

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.14	1	3.14	.25	1	.25
Columns	5.62	3	1.87	3.57	3	1.19
Error	1.39	3	.46	5.37	3	1.79
Total	10.15	7		9.19	7	
	F = 6.78*		F = 4.05	F = .14		F = .66

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.60	1	.60	.01	1	.01
Columns	1.18	3	.39	.15	3	.05
Error	1.00	3	.33	8.17	3	2.72
Total	2.78	7		8.33	7	
	F = 1.79		F = 1.18	F = .00		F = .02

READING

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.07	1	.07	2.99	1	2.99
Columns	3.76	3	1.25	5.92	3	1.97
Error	.46	3	.15	14.82	3	4.94
Total	4.29	7		23.73	7	
	F = .47		F = 8.22*	F = .60		F = .40

TABLE 4.04 (continued)

ARITHMETIC ACHIEVEMENT

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	13.24	1	13.24	.07	1	.07
Columns	2.58	3	.86	9.98	3	3.33
Error	12.88	3	4.29	9.25	3	3.08
Total	28.70	7		19.30	7	
	F = 3.08		F = .20	F = .02		F = 1.08

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.41	1	1.41	.10	1	.11
Columns	5.87	3	1.96	6.87	3	2.29
Error	8.82	3	2.94	4.90	3	1.63
Total	16.10	7		11.87	7	
	F = .48		F = .67	F = .06		F = 1.40

TABLE 4.04 (continued)

ARITHMETIC ACHIEVEMENT

WORD KNOWLEDGE 3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.54	1	.54	10.95	1	10.95
Columns	9.29	3	3.10	9.57	3	3.19
Error	3.03	3	1.01	7.10	3	2.37
Total	12.86	7		27.62	7	
	F = .53		F = 3.07	F = 4.63		F = 1.35

WORD DISCRIMINATION 3 to 4 Year

	1965-1966		
	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	.06	1	.06
Columns	1.80	3	.60
Error	7.64	3	2.55
Total	9.50	7	
	F = .02		F = .24

READING 3 to 4 Year

	1965-1966		
	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	5.36	1	5.36
Columns	2.11	3	.70
Error	25.84	3	8.61
Total	33.31	7	
	F = .62		F = .08

TABLE 4.04 (continued)

ARITHMETIC ACHIEVEMENT

3 to 4 Year

ARITHMETIC COMPUTATION

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		.80	1	.80
Columns		27.40	3	9.13
Error		1.21	3	.41
Total		29.41	7	
		F = 1.97		F = 22.54**

3 to 4 Year

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		11.93	1	11.93
Columns		27.24	3	9.08
Error		12.10	3	4.03
Total		51.27	7	
		F = 2.96		F = 2.25

TABLE 4.04 (continued)

ARITHMETIC ACHIEVEMENT

WORD KNOWLEDGE

4 to 5 Year

Item	1964-1965	1965-1966 Grade Equivalent S.S.	DF	M.S.
Rows		.28	1	.29
Columns		16.93	3	5.64
Error		15.49	3	5.16
Total		32.70	7	
		F = .06		F = 1.09

READING

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	.07	1	.07
Columns	26.69	3	8.90
Error	19.16	3	6.39
Total	45.92	7	
	F = .01		F = 1.39

TABLE 4.04 (continued)

ARITHMETIC ACHIEVEMENT

ARITHMETIC COMPUTATION

4 to 5 Year

Item	1964-1965	1965-1966 Grade Equivalent S.S.	 DF	 M.S.
Rows		8.55	1	8.55
Columns		18.58	3	6.19
Error		4.91	3	1.64
Total		32.04	7	
		F = 5.22		F = 3.78

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

Item	Grade Equivalent S.S.	 DF	 M.S.
Rows	.04	1	.04
Columns	11.17	3	3.72
Error	4.05	3	1.35
Total	15.26	7	
	F = .03		F = 2.76

TABLE 4.04 (continued)

ARITHMETIC ACHIEVEMENT

WORD KNOWLEDGE

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.22	1	2.22	1.63	1	1.63
Columns	45.19	3	15.06	21.72	3	7.24
Error	28.11	3	9.37	11.02	3	3.67
Total	75.52	7		34.37	7	
	F = .24		F = 1.61	F = .44		F = 1.97

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.10	1	.10	.48	1	.48
Columns	6.61	3	2.20	19.17	3	6.39
Error	74.78	3	24.93	22.17	3	7.39
Total	81.49	7		41.82	7	
	F = .00		F = .09	F = .06		F = .86

TABLE 4.04 (continued)

ARITHMETIC ACHIEVEMENT

READING

1 to 2 Year

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.5	1	4.5	.14	1	.15
Columns	17.26	3	5.75	17.25	3	5.75
Error	84.64	3	28.21	19.01	3	6.34
Total	106.40	7		36.40	7	
	F = .16		F = .20	F = .02		F = .91

ARITHMETIC TOTAL

1 to 2 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.90	1	.90	5.14	1	5.14
Columns	3.55	3	1.18	1.47	3	.49
Error	14.16	3	4.72	7.87	3	2.63
Total	18.61	7		14.48	7	
	F = .19		F = .25	F = 1.96		F = .19

TABLE 4.04 (continued)

TEACHERS AGE

WORD KNOWLEDGE

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	16.04	2	8.02	10.58	3	3.53
Columns	30.86	2	15.43	21.28	3	7.09
Error	51.27	4	12.82	43.14	9	4.79
Total	98.17	8		75.00	15	
	F = .63		F = 1.20	F = .74		F = 1.48

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	16.59	2	8.29	7.57	3	2.52
Columns	25.06	2	12.53	17.99	3	6.00
Error	28.09	4	7.02	39.10	9	4.34
Total	69.74	8		64.66	15	
	F = 1.18		F = 1.78	F = .58		F = 1.38

TABLE 4.04 (continued)

TEACHERS AGE

1 to 2 Year

READING

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	14.86	2	7.43	35.48	3	11.83
Columns	1.65	2	.82	22.16	3	7.39
Error	17.92	4	4.48	95.81	9	10.65
Total	34.43	8		153.45	15	
	F = 1.66		F = .18	F = 1.11		F = .69

1 to 2 Year

ARITHMETIC TOTAL

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	14.86	2	7.43	8.37	3	2.79
Columns	1.65	2	.82	8.51	3	2.84
Error	17.92	4	4.48	22.14	9	2.46
Total	34.43	8		39.02	15	
	F = 1.66		F = .18	F = 1.13		F = 1.15

TABLE 4.04 (continued)
TEACHERS AGE

2 to 3 Year

WORD KNOWLEDGE

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	8.18	3	2.73	19.69	3	6.56
Columns	14.46	3	4.82	19.59	3	6.53
Error	84.23	9	9.36	18.34	9	2.04
Total	106.87	15		57.62	15	
	F = .29		F = .51	F = 3.22		F = 3.20

WORD DISCRIMINATION

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.75	3	.92	21.56	3	7.19
Columns	1.89	3	.63	2.15	3	.72
Error	29.82	9	3.31	18.15	9	2.02
Total	34.46	15		41.86	15	
	F = .28		F = .19	F = 3.56		F = .36

READING

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.86	3	1.29	42.36	3	14.12
Columns	16.24	3	5.41	10.86	3	3.62
Error	30.43	9	3.38	29.58	9	3.29
Total	50.53	15		82.80	15	
	F = .38		F = 1.60	F = 4.30*		F = 1.10

TABLE 4.04 (continued)

TEACHERS AGE

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.86	3	.62	4.40	3	1.47
Columns	47.77	3	15.92	20.99	3	7.00
Error	46.12	9	5.12	36.93	9	4.10
Total	95.75	15		62.32	15	
	F = .12		F = 3.11	F = .36		F = 1.71

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.06	3	1.02	15.81	3	5.27
Columns	18.33	3	6.11	11.67	3	3.89
Error	24.42	9	2.71	6.29	9	.70
Total	45.81	15		33.77	15	
	F = .38		F = 2.25	F = 7.54**		F = 5.57*

TABLE 4.04 (continued)

TEACHERS AGE

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.97	3	.99	85.74	3	28.58
Columns	10.66	3	3.55	.11	2	.05
Error	20.57	9	2.29	34.70	6	5.78
Total	34.20	15		120.55	11	
	F = .43		F = 1.55	F = 4.94*		F = .01

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.80	3	1.93	39.08	3	13.03
Columns	7.46	3	2.49	.25	2	.12
Error	17.09	9	1.90	15.80	6	2.63
Total	30.35	15		55.13	11	
	F = 1.02		F = 1.31	F = 4.95*		F = .05

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.10	3	1.70	91.83	3	30.61
Columns	11.86	3	3.95	8.16	2	4.08
Error	14.27	9	1.59	37.11	6	6.19
Total	31.23	15		137.10	11	
	F = 1.07		F = 2.49	F = 4.95*		F = .66

TABLE 4.04 (continued)

TEACHERS AGE

ARITHMETIC COMPUTATION 3 to 4 Year

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	11.56	3	3.85	174.77	3	58.26
Columns	15.83	3	5.28	367.64	2	183.82
Error	14.85	9	1.65	339.13	6	56.52
Total	42.24	15		881.54	11	
	F = 2.34		F = 3.20	F = 1.03		F = 3.25

ARITHMETIC PROBLEM SOLVING AND CONCEPTS 3 to 4 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.16	3	1.72	14.95	3	4.98
Columns	2.48	3	.83	22.96	2	11.48
Error	20.19	9	2.24	31.46	6	5.24
Total	27.83	15		69.37	11	
	F = .77		F = .37	F = .95		F = 2.19

TOTAL ADJUSTMENT SCORE 3 to 4 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	31.35	3	10.45	28.42	3	9.47
Columns	7.13	3	2.38	21.04	3	7.01
Error	64.32	9	7.15	62.33	9	6.93
Total	102.80	15		111.79	15	
	F = 1.46		F = .33	F = 1.37		F = 1.01

TABLE 4.04 (continued)

TEACHERS AGE

WORD KNOWLEDGE

4 to 5 Year

Item	1964-1965	1965-1966 Grade Equivalent S.S.	DF	M.S.
Rows		51.35	3	17.12
Columns		18.90	3	6.30
Error		79.02	9	8.78
Total		149.27	15	
		F = 1.95		F = .72

READING

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	28.54	3	9.51
Columns	26.63	3	8.88
Error	69.72	9	7.75
Total	124.89	15	
	F = 1.23		F = 1.15

TABLE 4.04 (continued)

TEACHERS AGE

ARITHMETIC COMPUTATION

4 to 5 Year

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		60.16	3	20.05
Columns		94.79	3	31.60
Error		81.55	9	9.06
Total		236.50	15	
		F = 2.21		F = 3.49

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	6.33	3	2.11
Columns	17.24	3	5.75
Error	45.31	9	5.03
Total	68.88	15	
	F = .42		F = 1.14

TOTAL ADJUSTMENT SCORE

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	12.56	3	4.19
Columns	34.79	3	11.60
Error	66.45	9	7.38
Total	113.80	15	
	F = .57		F = 1.57

TABLE 4.04 (continued)

TEACHERS' EDUCATION

WORD KNOWLEDGE

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.69	2	1.85	3.73	1	3.73
Columns	40.84	2	20.42	25.57	3	8.52
Error	26.18	4	6.55	8.31	3	2.77
Total	70.71	8		37.61	7	
	F = .28		F = 3.12	F = 1.34		F = 3.08

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	27.72	2	13.86	1.39	1	1.39
Columns	14.40	2	7.20	19.46	3	6.49
Error	17.55	4	4.39	8.97	3	2.99
Total	59.67	8		29.82	7	
	F = 3.16		F = 1.64	F = .46		F = 2.17

TABLE 4.04 (continued)

TEACHERS' EDUCATION

1 to 2 Year

READING

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	9.13	2	4.56	4.79	1	4.79
Columns	19.11	2	9.56	38.98	3	12.99
Error	47.09	4	11.77	13.07	3	4.36
Total	75.33	8		56.84	7	
	F = .39		F = .81	F = 1.10		F = 2.98

1 to 2 Year

ARITHMETIC TOTAL

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.73	2	2.87	6.88	1	6.88
Columns	.96	2	.48	9.20	3	3.07
Error	7.02	4	1.75	4.88	3	1.63
Total	13.71	8		20.96	7	
	F = 1.63		F = .27	F = 4.23		F = 1.88

TABLE 4.04 (continued)

TEACHERS' EDUCATION

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.54	1	.54	4.18	1	4.18
Columns	5.39	3	1.80	26.08	3	8.70
Error	4.32	3	1.44	2.58	3	.86
Total	10.25	7		32.84	7	
	F = .38		F = 1.25	F = 4.85		F = 10.10*

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.30	1	2.30	3.40	1	3.40
Columns	4.52	3	1.51	5.13	3	1.71
Error	3.89	3	1.30	5.59	3	1.86
Total	10.71	7		14.12	7	
	F = 1.77		F = 1.16	F = 1.83		F = .92

READING

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.71	1	.71	1.94	1	1.94
Columns	5.70	3	1.90	17.90	3	5.97
Error	6.12	3	2.04	4.54	3	1.51
Total	12.53	7		24.38	7	
	F = .35		F = .93	F = 1.28		F = 3.94

TABLE 4.04 (continued)

TEACHERS' EDUCATION

ARITHMETIC COMPUTATION 2 to 3 Year

Item	1964-1965 Grade Equivalent S.S.	 DF	 M.S.	1965-1966 Grade Equivalent S.S.	 DF	 M.S.
Rows	.25	1	.25	13.08	1	13.08
Columns	5.45	3	1.82	53.15	3	17.72
Error	8.27	3	2.76	5.47	3	1.82
Total	13.97	7		71.70	7	
	F = .09		F = .66	F = 7.17		F = 9.71*

ARITHMETIC PROBLEM SOLVING AND CONCEPTS 2 to 3 Year

Item	Grade Equivalent S.S.	 DF	 M.S.	Grade Equivalent S.S.	 DF	 M.S.
Rows	.62	1	.62	.12	1	.12
Columns	10.17	3	3.39	25.73	3	8.58
Error	1.59	3	.53	3.94	3	1.31
Total	12.38	7		29.79	7	
	F = 1.18		F = 6.42	F = .09		F = 6.54

TABLE 4.04 (continued)

TEACHERS' EDUCATION

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	21.24	3	7.08	13.46	2	6.73
Columns	9.58	3	3.19	12.97	3	4.32
Error	12.50	9	1.39	13.27	6	2.21
Total	43.32	15		39.70	11	
	F = 5.10*		F = 2.30	F = 3.04		F = 1.95

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	8.23	3	2.74	8.18	2	4.09
Columns	4.37	3	1.46	34.87	3	11.62
Error	8.77	9	.97	9.47	6	1.58
Total	21.37	15		52.52	11	
	F = 2.82		F = 1.50	F = 2.59		F = 7.36*

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.47	3	1.82	35.31	2	17.65
Columns	3.43	3	1.14	43.63	3	14.54
Error	38.44	9	4.27	181.16	6	30.19
Total	47.34	15		260.10	11	
	F = .43		F = .27	F = .58		F = .48

TABLE 4.04 (continued)

TEACHERS' EDUCATION

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.02	3	.67	12.77	2	6.38
Columns	15.80	3	5.27	101.72	3	33.91
Error	14.10	9	1.57	54.41	6	9.07
Total	31.92	15		168.90	11	
	F = .43		F = 3.36	F = .70		F = 3.74

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	7.38	3	2.46
Columns	5.88	3	1.96
Error	20.77	9	2.31
Total	34.04	15	
	F = 1.07		F = .85

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	6.56	3	2.19	15.42	3	5.14
Columns	26.77	3	8.92	23.84	3	7.95
Error	71.07	9	7.90	65.15	9	7.24
Total	104.40	15		104.41	15	
	F = .28		F = 1.13	F = .71		F = 1.10

TABLE 4.04 (continued)

TEACHERS' EDUCATION

WORD KNOWLEDGE

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	48.54	2	24.27
Columns	22.65	3	7.55
Error	92.59	6	15.43
Total	163.78	11	

F = 1.57

F = .49

READING

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	29.04	2	14.52
Columns	44.18	3	14.73
Error	34.29	6	5.71
Total	107.51	11	

F = 2.54

F = 2.58

ARITHMETIC COMPUTATION

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	1.10	2	.55
Columns	3.50	3	1.17
Error	76.54	6	12.76
Total	81.14	11	

F = .04

F = .09

TABLE 4.04 (continued)

TEACHERS' EDUCATION

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	9.49	2	4.74
Columns	18.91	3	6.30
Error	11.20	6	1.87
Total	39.60	11	
	F = 2.54		F = 3.38

TOTAL ADJUSTMENT SCORE

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	24.31	3	8.10
Columns	48.33	3	16.11
Error	32.36	9	3.60
Total	105.00	15	
	F = 2.25		F = 4.48*

TABLE 4.04 (continued)

TEACHERS' AREA OF PREPARATION

WORD KNOWLEDGE

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.69	3	.23	17.05	3	5.68
Columns	48.00	2	24.00	29.89	3	9.96
Error	55.34	6	9.22	44.29	9	4.92
Total	104.03	11		91.23	15	
	F = .02		F = 2.60	F = 1.15		F = 2.02

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.01	3	1.67	9.32	3	3.11
Columns	44.03	2	22.02	27.78	3	9.26
Error	111.51	6	18.58	27.87	9	3.10
Total	160.55	11		64.97	15	
	F = .09		F = 1.18	F = 1.00		F = 2.99

TABLE 4.04 (continued)

TEACHERS' AREA OF PREPARATION

READING

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	27.40	3	9.13	10.53	3	3.51
Columns	44.64	2	22.32	32.47	3	10.82
Error	103.41	6	17.23	47.09	9	5.23
Total	175.45	11		90.09	15	
	F = .53		F = 1.30	F = .67		F = 2.07

ARITHMETIC TOTAL

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	34.54	3	11.51	7.36	3	2.45
Columns	4.82	2	2.41	12.75	3	4.25
Error	8.90	6	1.48	17.16	9	1.91
Total	48.26	11		37.27	15	
	F = 7.76*		F = 1.63	F = 1.29		F = 2.23

TABLE 4.04 (continued)

TEACHERS' AREA OF PREPARATION

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	20.15	3	6.72	17.89	3	5.96
Columns	4.16	3	1.39	37.51	3	12.50
Error	23.45	9	2.61	32.45	9	3.61
Total	47.76	15		87.85	15	
	F = 2.58		F = .53	F = 1.65		F = 3.47

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	6.75	3	2.25	16.39	3	5.46
Columns	9.96	3	3.32	8.88	3	2.96
Error	12.11	9	1.35	41.33	9	4.59
Total	28.82	15		66.60	15	
	F = 1.67		F = 2.47	F = 1.19		F = .64

TABLE 4.04 (continued)

TEACHERS' AREA OF PREPARATION

READING

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.75	3	1.58	2.36	3	.79
Columns	1.44	3	.48	24.14	3	8.05
Error	45.81	9	5.09	25.42	9	2.82
Total	52.00	15		51.92	15	
	F = .31		F = .09	F = .28		F = 2.85

ARITHMETIC COMPUTATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.83	3	1.94	16.16	3	5.39
Columns	31.10	3	10.37	48.90	3	16.30
Error	34.46	9	3.83	22.11	9	2.46
Total	71.39	15		87.17	15	
	F = .51		F = 2.71	F = 2.19		F = 6.64*

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	9.25	3	3.08	10.71	3	3.57
Columns	32.42	3	10.81	36.19	3	12.06
Error	27.39	9	3.04	21.65	9	2.41
Total	69.06	15		68.55	15	
	F = 1.01		F = 3.55	F = 1.48		F = 5.01*

TABLE 4.04 (continued)

TEACHERS' AREA OF PREPARATION

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.03	3	1.34	46.38	3	15.46
Columns	7.52	3	2.51	11.90	3	3.97
Error	30.26	9	3.36	57.06	9	6.34
Total	41.81	15		115.34	15	
	F = .40		F = .75	F = 2.44		F = .63

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	7.47	3	2.49	29.99	3	10.00
Columns	12.59	3	4.20	4.24	3	1.41
Error	24.82	9	2.76	72.93	9	8.10
Total	44.88	15		107.16	15	
	F = .90		F = 1.52	F = 1.23		F = .17

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.02	3	.34	84.49	3	28.16
Columns	17.07	3	5.69	36.92	3	12.31
Error	46.18	9	5.13	208.95	9	23.22
Total	64.27	15		330.36	15	
	F = .07		F = 1.11	F = 1.21		F = .53

TABLE 4.04 (continued)

TEACHERS' AREA OF PREPARATION

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.70	3	.57	105.19	3	35.06
Columns	21.76	3	7.25	351.33	3	117.11
Error	18.37	9	2.04	505.66	9	56.18
Total	41.83	15		962.18	15	
	F = .28		F = 3.55	F = .62		F = 2.08

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.94	3	1.31	55.54	3	18.51
Columns	5.01	3	1.67	23.58	3	7.86
Error	11.80	9	1.31	139.92	9	15.55
Total	20.75	15		219.04	15	
	F = 1.00		F = 1.27	F = 1.19		F = .51

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	31.39	3	10.46	5.55	3	1.85
Columns	12.81	3	4.27	45.15	3	15.05
Error	48.43	9	5.38	193.46	9	21.50
Total	92.63	15		244.16	15	
	F = 1.94		F = .79	F = .09		F = .70

TABLE 4.04 (continued)

TEACHERS' AREA OF PREPARATION

WORD KNOWLEDGE

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	31.93	3	10.64
Columns	82.77	3	27.59
Error	192.86	9	21.43
Total	307.56	15	
	F = .50		F = 1.29

READING

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	57.58	3	19.19
Columns	81.97	3	27.32
Error	58.60	9	6.51
Total	198.15	15	
	F = 2.95		F = 4.20*

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TABLE 4.04 (continued)

TEACHERS' AREA OF PREPARATION

ARITHMETIC COMPUTATION

4 to 5 Year

1964-1965 1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	51.07	3	17.02
Columns	8.98	3	2.99
Error	147.44	9	16.38
Total	207.49	15	
	F = 1.04		F = .18

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	20.18	3	6.73
Columns	32.83	3	10.94
Error	84.85	9	9.43
Total	137.86	15	
	F = .71		F = 1.16

TOTAL ADJUSTMENT SCORE

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	15.68	3	5.23
Columns	25.91	3	8.64
Error	59.31	9	6.59
Total	100.90	15	
	F = .79		F = 1.31

TABLE 4.04 (continued)

TEACHERS' TOTAL TEACHING EXPERIENCE

WORD KNOWLEDGE

1 to 2 Year

1964-1965

1965-1966

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	8.15	3	2.72
Columns	15.26	3	5.09
Error	19.86	9	2.21
Total	43.27	15	

F = 1.23 F = 2.31

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	4.32	3	1.44
Columns	17.08	3	5.69
Error	20.98	9	2.33
Total	42.38	15	

F = .62 F = 2.44

TABLE 4.04 (continued)

TEACHERS' TOTAL TEACHING EXPERIENCE

READING

1 to 2 Year

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		25.94	3	8.65
Columns		13.31	3	4.44
Error		48.86	9	5.43
Total		88.11	15	
		F = 1.59		F = .82

ARITHMETIC TOTAL

1 to 2 Year

	Grade Equivalent		
ITEM	S.S.	DF	M.S.
Rows	2.83	3	.94
Columns	10.37	3	3.46
Error	7.01	9	.78
Total	20.21	15	
	F = 1.21		F = 4.43*

TABLE 4.04 (continued)

TEACHERS' TOTAL TEACHING EXPERIENCE

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.12	2	1.06	16.92	3	5.64
Columns	12.20	3	4.07	.39	2	.19
Error	27.32	6	4.55	15.32	6	2.55
Total	41.64	11		32.63	11	
	F = .23		F = .89	F = 2.21		F = .08

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.13	2	2.57	7.56	3	2.52
Columns	7.30	3	2.43	.17	2	.08
Error	13.89	6	2.32	4.12	6	.69
Total	26.32	11		11.85	11	
	F = 1.11		F = 1.05	F = 3.67		F = .12

TABLE 4.04 (continued)

TEACHERS' TOTAL TEACHING EXPERIENCE

READING

2 to 3 Year

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.81	2	.40	12.52	3	4.17
Columns	11.19	3	3.73	3.08	2	1.54
Error	13.05	6	2.17	10.13	6	1.69
Total	25.05	11		25.73	11	
	F = .19		F = 1.72	F = 2.47		F = .91

ARITHMETIC COMPUTATION

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.35	2	2.68	2.60	3	.87
Columns	26.84	3	8.95	6.57	2	3.28
Error	9.92	6	1.65	22.69	6	3.78
Total	42.11	11		31.86	11	
	F = 1.62		F = 5.41*	F = .23		F = .87

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.84	2	1.42	4.23	3	1.41
Columns	22.57	3	7.52	7.91	2	3.96
Error	6.15	6	1.02	6.89	6	1.15
Total	31.56	11		19.03	11	
	F = 1.39		F = 7.34*	F = 1.23		F = 3.44

TABLE 4.04 (continued)

TEACHERS' TOTAL TEACHING EXPERIENCE

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.93	3	1.64	2.58	2	1.29
Columns	19.15	3	6.38	20.45	3	6.82
Error	18.32	9	2.04	145.92	6	24.32
Total	42.40	15		168.95	11	
	F = .81		F = 3.14	F = .05		F = .28

WORD DISCRIMINATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	10.44	3	3.48	8.35	2	4.17
Columns	19.50	3	6.50	29.34	3	9.78
Error	26.91	9	2.99	190.95	6	31.82
Total	56.85	15		228.64	11	
	F = 1.16		F = 2.17	F = .13		F = .31

READING

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.87	3	1.62	8.83	2	4.42
Columns	25.59	3	8.53	56.41	3	18.80
Error	16.72	9	1.86	207.57	6	34.60
Total	47.18	15		272.81	11	
	F = .87		F = 4.59*	F = .13		F = .54

TABLE 4.04 (continued)

TEACHERS' TOTAL TEACHING EXPERIENCE

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	10.12	3	3.37	86.42	2	43.21
Columns	25.98	3	8.66	384.91	3	128.31
Error	22.74	9	2.53	390.65	6	65.11
Total	58.84	15		861.98	11	
	F = 1.33		F = 3.43	F = .66		F = 1.97

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.13	3	1.04	4.12	2	2.06
Columns	2.19	3	.73	23.26	3	7.75
Error	16.94	9	1.88	27.15	6	4.53
Total	22.26	15		54.53	11	
	F = .55		F = .39	F = .45		F = 1.71

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	19.22	3	6.41	17.31	3	5.77
Columns	1.13	3	.38	12.72	3	4.24
Error	47.00	9	5.22	54.15	9	6.02
Total	67.35	15		84.18	15	
	F = 1.23		F = .07	F = .96		F = .70

TABLE 4.04 (continued)

TEACHERS' TOTAL TEACHING EXPERIENCE

WORD KNOWLEDGE

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	.52	3	.17
Columns	58.16	3	19.39
Error	237.39	9	26.38
Total	296.07	15	
	F = .01		F = .74

READING

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	9.06	3	3.02
Columns	27.38	3	9.13
Error	106.37	9	11.82
Total	142.81	15	
	F = .26		F = .77

TABLE 4.04 (continued)

TEACHERS' TOTAL TEACHING EXPERIENCE

ARITHMETIC COMPUTATION

4 to 5 Year

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		22.64	3	7.55
Columns		26.55	3	8.85
Error		71.76	9	7.97
Total		120.95	15	
		F = .95		F = 1.11

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	11.26	3	3.75
Columns	26.23	3	8.74
Error	72.02	9	8.00
Total	109.51	15	
	F = .47		F = 1.09

TOTAL ADJUSTMENT SCORE

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	3.42	3	1.14
Columns	39.93	3	13.31
Error	64.27	9	7.14
Total	107.62	15	
	F = .16		F = 1.86

TABLE 4.04 (continued)

PROVISIONS FOR PROGRESS

WORD KNOWLEDGE

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	6.83	1	6.83	1.88	1	1.88
Columns	13.02	2	6.51	13.56	2	6.78
Error	5.48	2	2.74	14.17	2	7.09
Total	25.33	5		29.61	5	
	F = 2.49		F = 2.38	F = .27		F = .96

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.88	1	5.88	.22	1	.22
Columns	24.28	2	12.14	12.12	2	6.06
Error	2.63	2	1.31	16.00	2	8.00
Total	32.79	5		28.34	5	
	F = 4.48		F = 9.24	F = .03		F = .76

TABLE 4.04 (continued)

PROVISIONS FOR PROGRESS

READING

1 to 2 Year

Item	1964-1965 Grade Equivalent S.S.	DF	M.S.	1965-1966 Grade Equivalent S.S.	DF	M.S.
Rows	8.26	1	8.26	.24	1	.24
Columns	43.52	2	21.76	15.44	2	7.72
Error	13.58	2	6.79	21.82	2	10.91
Total	65.36	5		37.50	5	
	F = 1.22		F = 3.20	F = .02		F = .71

ARITHMETIC TOTAL

1 to 2 Year

Item	Grade Equivalent S.S.	DF	M.S.	Grade Equivalent S.S.	DF	M.S.
Rows	4.47	1	4.47	.08	1	.08
Columns	12.74	2	6.37	6.80	2	3.40
Error	.96	2	.48	3.89	2	1.94
Total	18.17	5		10.77	5	
	F = 9.35		F = 13.33	F = .04		F = 1.75

TABLE 4.04 (continued)

PROVISIONS FOR PROGRESS

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	8.45	1	8.45	7.57	1	7.57
Columns	1.33	2	.67	1.26	2	.63
Error	2.85	2	1.43	15.07	2	7.54
Total	12.63	5		23.90	5	
	F = 5.93		F = .47	F = 1.00		F = .08

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.10	1	3.10	.14	1	.14
Columns	.29	2	.15	1.32	2	.66
Error	.50	2	.25	.81	2	.40
Total	3.89	5		2.27	5	
	F = 12.33		F = .58	F = .35		F = 1.63

READING

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.63	1	5.63	4.49	1	4.49
Columns	.11	2	.05	1.23	2	.61
Error	.59	2	.30	8.03	2	4.02
Total	6.33	5		13.75	5	
	F = 19.05*		F = .18	F = 1.12		F = .15

TABLE 4.04 (continued)

PROVISIONS FOR PROGRESS

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	12.06	2	6.03	4.32	1	4.32
Columns	.01	1	.01	2.84	2	1.42
Error	2.31	2	1.15	9.84	2	4.92
Total	14.38	5		17.00	5	
	F = 5.22		F = .01	F = .88		F = .29

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.87	1	2.87	9.93	1	9.93
Columns	4.45	2	2.22	8.36	2	4.18
Error	5.58	2	2.79	24.59	2	12.30
Total	12.90	5		42.89	5	
	F = 1.03		F = .80	F = .81		F = .34

TABLE 4.04 (continued)

PROVISIONS FOR PROGRESS

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.27	1	.27	3.29	1	3.29
Columns	6.11	2	3.05	25.26	2	12.63
Error	.12	2	.06	3.12	2	1.56
Total	6.50	5		31.67	5	
	F = 4.48		F = 50.05*	F = 2.11		F = 8.09

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.13	1	4.13	10.40	1	10.40
Columns	.97	2	.48	8.80	2	4.40
Error	1.00	2	.50	12.72	2	6.36
Total	6.10	5		31.92	5	
	F = 8.27		F = .97	F = 1.64		F = .69

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.67	1	.67	.02	1	.02
Columns	13.79	2	6.90	20.49	2	10.24
Error	4.43	2	2.21	13.48	2	6.74
Total	18.89	5		33.99	5	
	F = .30		F - 3.11	F = .00		F = 1.52

TABLE 4.04 (continued)

PROVISIONS FOR PROGRESS

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.21	1	.21	2.73	1	2.73
Columns	6.81	2	3.41	56.09	2	28.04
Error	1.13	2	.57	77.62	2	38.81
Total	8.15	5		136.44	5	
	F = .37		F = 6.02	F = .07		F = .72

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.58	1	.58	.77	1	.77
Columns	3.94	2	1.97	14.59	2	7.29
Error	1.25	2	.62	7.93	2	3.97
Total	5.77	5		23.29	5	
	F = .92		F = 3.16	F = .19		F = 1.84

TABLE 4.04 (continued)

INVENTORY TOTAL ACCEPTANCE

WORD KNOWLEDGE 1 to 2 Year

1964-1965 1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	2.20	2	1.10
Columns	2.17	2	1.09
Error	15.35	4	3.84
Total	19.72	8	

F = .29 F = .28

WORD DISCRIMINATION 1 to 2 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	.57	2	.29
Columns	1.55	2	.78
Error	25.88	4	6.47
Total	28.00	8	

F = .04 F = .12

TABLE 4.04 (continued)

INVENTORY TOTAL ACCEPTANCE

READING

1 to 2 Year

Item	1964-1965	1965-1966		
		Grade Equivalent		
		S.S.	DF	M.S.
Rows		11.39	2	5.70
Columns		3.44	2	1.72
Error		29.82	4	7.45
Total		44.65	8	
		F = .76		F = .23

ARITHMETIC TOTAL

1 to 2 Year

Item		Grade Equivalent		
		S.S.	DF	M.S.
Rows		.48	2	.24
Columns		5.81	2	2.90
Error		8.82	4	2.21
Total		15.11	8	
		F = .11		F = 1.32

TABLE 4.04 (continued)

INVENTORY TOTAL ACCEPTANCE

WORD KNOWLEDGE

2 to 3 Year

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	8.40	2	4.20	11.84	2	5.92
Columns	2.54	2	1.27	1.62	2	.81
Error	15.81	4	3.95	27.75	4	6.94
Total	26.75	8		41.21	8	
	F = 1.06		F = .32	F = .85		F = .12

WORD DISCRIMINATION

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.37	2	1.69	3.29	2	1.65
Columns	1.73	2	.87	5.08	2	2.54
Error	4.41	4	1.10	4.83	4	1.21
Total	9.51	8		13.20	8	
	F = 1.53		F = .79	F = 1.36		F = 2.10

TABLE 4.04 (continued)

INVENTORY TOTAL ACCEPTANCE

READING

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	7.95	2	3.98	23.20	2	11.60
Columns	1.15	2	.58	5.54	2	2.77
Error	9.73	4	2.43	40.02	4	10.00
Total	18.83	8		68.76	8	
	F = 1.63		F = .24	F = 1.16		F = .28

ARITHMETIC COMPUTATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.87	2	1.93	4.79	2	2.39
Columns	12.18	2	6.09	10.50	2	5.25
Error	12.02	4	3.00	12.45	4	3.11
Total	28.07	8		27.74	8	
	F = .64		F = 2.03	F = .77		F = 1.69

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.93	2	.46	16.31	2	8.16
Columns	3.62	2	1.81	3.21	2	1.61
Error	6.65	4	1.66	20.24	4	5.06
Total	11.20	8		39.76	8	
	F = .28		F = 1.09	F = 1.61		F = .32

TABLE 4.04 (continued)

INVENTORY TOTAL ACCEPTANCE

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.57	2	1.29	21.37	2	10.69
Columns	1.49	2	.75	17.11	2	8.55
Error	3.06	4	.76	4.00	4	1.00
Total	7.12	8		42.48	8	
	F = 1.68		F = .97	F = 10.68*		F = 8.55*

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.38	2	.19	7.91	2	3.96
Columns	10.52	2	5.26	8.74	2	4.37
Error	1.08	4	.27	8.68	4	2.17
Total	11.98	8		25.33	8	
	F = .71		F = 19.47**	F = 1.82		F = 2.02

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.44	2	.72	9.61	2	4.80
Columns	1.04	2	.52	10.15	2	5.08
Error	3.18	4	.79	2.10	4	.53
Total	5.66	8		21.86	8	
	F = .91		F = .65	F = 9.14*		F = 9.66*

TABLE 4.04 (continued)

INVENTORY TOTAL ACCEPTANCE

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.33	2	1.66	2.38	2	1.19
Columns	12.63	2	6.31	57.40	2	28.70
Error	11.29	4	2.82	31.33	4	7.83
Total	27.25	8		91.11	8	
	F = .59		F = 2.24	F = .15		F = 3.66

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.12	2	.56	27.79	2	13.90
Columns	10.52	2	5.26	8.80	2	4.40
Error	4.17	4	1.04	21.26	4	5.32
Total	15.81	8		57.85	8	
	F = .54		F = 5.05	F = 2.61		F = .83

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	8.09	2	4.05	99.13	2	49.57
Columns	24.12	2	12.06	389.20	2	194.60
Error	21.48	4	5.37	191.20	4	47.80
Total	53.69	8		679.53	8	
	F = .75		F = 2.25	F = 1.04		F = 4.07

TABLE 4.04 (continued)

INVENTORY TOTAL ACCEPTANCE

WORD KNOWLEDGE

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	1.88	2	.94
Columns	8.52	2	4.26
Error	.14	4	.03
Total	10.54	8	

F = 27.07**

F = 122.93**

READING

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	2.31	2	1.15
Columns	2.89	2	1.45
Error	7.37	4	1.84
Total	12.57	8	

F = .63

F = .79

TABLE 4.04 (continued)

INVENTORY TOTAL ACCEPTANCE

ARITHMETIC COMPUTATION

4 to 5 Year

1964-1965 1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	7.50	2	3.75
Columns	53.84	2	26.92
Error	91.13	4	22.78
Total	152.47	8	

F = .16 F = 1.18

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	2.24	2	1.12
Columns	2.75	2	1.38
Error	9.99	4	2.50
Total	14.98	8	

F - .45 F = .55

TOTAL ADJUSTMENT SCORE

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	16.31	2	8.16
Columns	9.53	2	4.76
Error	3.71	4	.93
Total	29.55	8	

F = 8.80* F = 5.14

TABLE 4.04 (continued)

PRINCIPALS' AGE

WORD KNOWLEDGE

1 to 2 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	11.83	2	5.92
Columns	1.80	2	.90
Error	13.11	4	3.28
Total	26.74	8	
	F = 1.80		F = .27

WORD DISCRIMINATION

1 to 2 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	5.74	2	2.87
Columns	2.64	2	1.32
Error	7.88	4	1.97
Total	16.26	8	
	F = 1.46		F = .67

TABLE 4.04 (continued)

PRINCIPALS' AGE

READING 1 to 2 Year

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		34.05	2	17.03
Columns		9.30	2	4.65
Error		18.08	4	4.52
Total		61.43	8	
		F = 3.77		F = 1.03

ARITHMETIC TOTAL 1 to 2 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	1.79	2	.90
Columns	11.49	2	5.74
Error	11.62	4	2.91
Total	24.90	8	
	F = .31		F = 1.98

TABLE 4.04 (continued)

PRINCIPALS' AGE

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	10.44	2	5.22	6.76	2	3.38
Columns	3.88	2	1.94	1.78	2	.89
Error	13.54	4	3.39	2.93	4	.73
Total	27.86	8		11.47	8	
	F = 1.54		F = .57	F = 4.62		F = 1.22

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.82	2	2.91	10.71	2	5.36
Columns	2.55	2	1.27	.46	2	.23
Error	4.59	4	1.15	5.99	4	1.50
Total	12.96	8		17.16	8	
	F = 2.53		F = 1.11	F = 3.58		F = .15

READING

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	8.39	2	4.20	25.30	2	12.65
Columns	1.91	2	.95	.61	2	.30
Error	7.31	4	1.83	13.45	4	3.36
Total	17.61	8		39.36	8	
	F = 2.30		F = .52	F = 3.76		F = .09

TABLE 4.04 (continued)

PRINCIPALS' AGE

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.32	2	1.16	.07	2	.03
Columns	9.27	2	4.64	21.25	2	10.62
Error	7.67	4	1.92	3.51	4	.88
Total	19.26	8		24.83	8	
	F = .61		F = 2.42	F = .04		F = 12.10*

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.23	2	1.12	1.20	2	.60
Columns	2.17	2	1.09	1.39	2	.70
Error	5.12	4	1.28	3.78	4	.95
Total	9.52	8		6.37	8	
	F = .87		F = .85	F = .64		F = .74

TABLE 4.04 (continued)

PRINCIPALS' AGE

WORD KNOWLEDGE

3 to 4 Year

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.10	2	.05	1.56	2	.78
Columns	2.16	2	1.08	29.71	2	14.85
Error	4.12	4	1.03	20.10	4	5.02
Total	6.38	8		51.37	8	
	F = .05		F = 1.05	F = .16		F = 2.96

WORD DISCRIMINATION

3 to 4 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.91	2	.96	5.40	2	2.70
Columns	9.30	2	4.65	19.16	2	9.58
Error	8.81	4	2.20	13.24	4	3.31
Total	20.02	8		37.80	8	
	F = .44		F = 2.11	F = .82		F = 2.89

READING

3 to 4 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.35	2	.67	6.19	2	3.10
Columns	2.26	2	1.13	3.75	2	1.87
Error	12.04	4	3.01	10.07	4	2.52
Total	15.65	8		20.01	8	
	F = .22		F = .38	F = 1.23		F = .74

TABLE 4.04 (continued)

PRINCIPALS' AGE

ARITHMETIC COMPUTATION 3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	11.16	2	5.58	13.66	2	6.83
Columns	8.37	2	4.19	17.64	2	8.82
Error	5.49	4	1.37	10.25	4	2.56
Total	25.02	8		41.55	8	
	F = 4.06		F = 3.05	F = 2.67		F = 3.44

ARITHMETIC PROBLEM SOLVING AND CONCEPTS 3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.56	2	1.78	.33	2	.16
Columns	7.17	2	3.59	11.39	2	5.70
Error	2.85	4	.71	20.18	4	5.05
Total	13.58	8		31.90	8	
	F = 2.50		F = 5.03	F = .03		F = 1.13

TOTAL ADJUSTMENT SCORE 3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	14.53	2	7.26	3.84	2	1.92
Columns	11.05	2	5.53	15.20	2	7.60
Error	21.19	4	5.30	23.88	4	5.97
Total	46.77	8		42.92	8	
	F = 1.37		F = 1.04	F = .32		F = 1.27

TABLE 4.04 (continued)

PRINCIPALS' AGE

WORD KNOWLEDGE

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent S.S.	Grade Equivalent DF	Grade Equivalent M.S.
Rows	3.81	2	1.91
Columns	23.89	2	11.95
Error	21.49	4	5.37
Total	49.19	8	

F = .35 F = 2.22

READING

4 to 5 Year

Item	Grade Equivalent S.S.	Grade Equivalent DF	Grade Equivalent M.S.
Rows	13.84	2	6.92
Columns	8.50	2	4.25
Error	30.66	4	7.66
Total	53.00	8	

F = .90 F = .55

TABLE 4.04 (continued)

PRINCIPALS' AGE

4 to 5 Year

ARITHMETIC COMPUTATION

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		42.74	2	21.37
Columns		173.56	2	86.78
Error		47.32	4	11.83
Total		263.62	8	
		F = 1.81		F = 7.33*

4 to 5 Year

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		3.31	2	1.66
Columns		8.07	2	4.03
Error		11.60	4	2.90
Total		22.98	8	
		F = .57		F = 1.39

4 to 5 Year

TOTAL ADJUSTMENT SCORE

		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		15.73	2	7.86
Columns		10.67	2	5.34
Error		26.56	4	6.64
Total		52.96	8	
		F = 1.18		F = .80

TABLE 4.04 (continued)

PRINCIPALS' EDUCATION

WORD KNOWLEDGE

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	10.04	1	10.04	7.33	1	7.33
Columns	.14	2	.07	.67	2	.33
Error	22.23	2	11.12	6.96	2	3.48
Total	32.41	5		14.96	5	
	F = .90		F = .01	F = 2.11		F = .10

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	16.20	1	16.20	5.12	1	5.12
Columns	4.11	2	2.05	1.58	2	.79
Error	22.18	2	11.09	8.11	2	4.06
Total	42.49	5		14.81	5	
	F = 1.46		F = .19	F = 1.26		F = .19

TABLE 4.04 (continued)

PRINCIPALS' EDUCATION

READING

1 to 2 Year

	1964-1965			1965-1966		
				Grade Equivalent		
Item				S.S.	DF	M.S.
Rows				8.38	1	8.38
Columns				.30	2	.15
Error				20.18	2	10.09
Total				28.86	5	
				F = .83		F = .02

ARITHMETIC TOTAL

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.07	1	.07	.86	1	.86
Columns	4.68	2	2.34	4.01	2	2.01
Error	5.94	2	2.97	.72	2	.36
Total	10.69	5		5.59	5	
	F = .03		F = .79	F = 2.37		F = 5.53

TABLE 4.04 (continued)

PRINCIPALS' EDUCATION

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.01	1	3.01	13.5	1	13.5
Columns	.11	2	.05	5.91	2	2.96
Error	3.21	2	1.60	14.91	2	7.46
Total	6.33	5		34.32	5	
	F = 1.88		F = .03	F = 1.81		F = .40

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.40	1	.40	2.71	1	2.71
Columns	.31	2	.15	5.43	2	2.72
Error	.31	2	.16	2.89	2	1.45
Total	1.02	5		11.03	5	
	F = 2.51		F = .98	F = 1.87		F = 1.88

READING

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.26	1	2.26	23.96	1	23.96
Columns	.05	2	.03	14.08	2	7.04
Error	1.08	2	.54	24.59	2	12.30
Total	3.39	5		62.63	5	
	F = 4.19		F = .05	F = 1.95		F = .57

TABLE 4.04 (continued)

PRINCIPALS' EDUCATION

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.09	1	1.09	10.69	1	10.69
Columns	3.32	2	1.66	14.74	2	7.37
Error	6.80	2	3.40	.51	2	.25
Total	11.21	5		25.94	5	
	F = .32		F = .49	F = 41.96*		F = 28.92*

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.62	1	1.62	14.48	1	14.48
Columns	.64	2	.32	10.80	2	5.40
Error	2.49	2	1.25	12.11	2	6.05
Total	4.75	5		37.39	5	
	F = 1.30		F = .26	F = 2.39		F = .89

TABLE 4.04 (continued)

PRINCIPALS' EDUCATION

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.59	1	3.59	.54	1	.54
Columns	.27	2	.13	18.46	2	9.23
Error	.71	2	.36	9.97	2	4.99
Total	4.57	5		28.97	5	
	F = 10.07		F = .38	F = .11		F = 1.85

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.24	1	2.24	1.79	1	1.79
Columns	2.56	2	1.28	7.30	2	3.65
Error	.19	2	.09	1.46	2	.73
Total	4.99	5		10.55	5	
	F = 24.24*		F = 13.81	F = 2.46		F = 5.01

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.56	1	3.56	.06	1	.06
Columns	.21	2	.11	7.60	2	3.80
Error	2.76	2	1.38	1.29	2	.65
Total	6.53	5		8.95	5	
	F = 2.57		F = .08	F = .09		F = 5.88

TABLE 4.04 (continued)

PRINCIPALS' EDUCATION

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.00	1	1.00	4.40	1	4.40
Columns	8.63	2	4.32	24.67	2	12.33
Error	8.07	2	4.03	3.87	2	1.93
Total	17.70	5		32.94	5	
	F = .25		F = 1.07	F = 2.28		F = 6.37

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.07	1	1.07	.07	1	.07
Columns	6.74	2	3.37	5.66	2	2.83
Error	6.48	2	3.24	5.31	2	2.65
Total	14.29	5		11.04	5	
	F = .33		F = 1.04	F = .03		F = 1.07

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.98	1	.98	1.09	1	1.09
Columns	5.17	2	2.59	7.68	2	3.84
Error	1.37	2	.69	21.14	2	10.57
Total	7.52	5		29.91	5	
	F = 1.42		F = 3.76	F = .10		F = .36

TABLE 4.04 (continued)

PRINCIPALS' EDUCATION

WORD KNOWLEDGE

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	3.71	1	3.71
Columns	2.49	2	1.24
Error	6.86	2	3.43
Total	13.06	5	
	F = 1.08		F = .36

READING

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	.30	1	.30
Columns	5.38	2	2.69
Error	5.51	2	2.75
Total	11.19	5	
	F = .11		F = .98

TABLE 4.04 (continued)

PRINCIPALS' EDUCATION

ARITHMETIC COMPUTATION

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	8.05	1	8.05
Columns	67.21	2	33.61
Error	41.69	2	20.85
Total	116.95		
	F = .39		F = 1.61

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	.00	1	.00
Columns	4.16	2	2.08
Error	3.49	2	1.75
Total	7.65	5	
	F = .00		F = 1.19

TOTAL ADJUSTMENT SCORE

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	9.40	1	9.40
Columns	.64	2	.32
Error	7.48	2	3.74
Total	17.52	5	
	F = 2.51		F = .09

TABLE 4.04 (continued)

PRINCIPALS' AREA OF PREPARATION

WORD KNOWLEDGE

1 to 2 Year

1964-1965

1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	1.71	2	.86
Columns	.49	2	.25
Error	21.57	4	5.39
Total	23.77	8	

F = .16

F = .05

WORD DISCRIMINATION

1 to 2 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	1.19	2	.59
Columns	.14	2	.07
Error	26.75	4	6.69
Total	28.08	8	

F = .09

F = .01

TABLE 4.04 (continued)

PRINCIPALS' AREA OF PREPARATION

READING

1 to 2 Year

1964-1965

1965-1966

Item	Grade Equivalent S.S.	 DF	 M.S.
Rows	10.54	2	5.27
Columns	.21	2	.10
Error	31.03	4	7.76
Total	41.78	8	
	F = .68		F = .01

ARITHMETIC TOTAL

1 to 2 Year

Item	Grade Equivalent S.S.	 DF	 M.S.
Rows	.66	2	.33
Columns	9.48	2	4.74
Error	4.28	4	1.07
Total	14.42	8	
	F = .31		F = 4.43

TABLE 4.04 (continued)

PRINCIPALS' AREA OF PREPARATION

WORD KNOWLEDGE

2 to 3 Year

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.64	2	2.82	10.46	2	5.23
Columns	.84	2	.42	2.72	2	1.36
Error	2.08	4	.52	25.80	4	6.45
Total	8.56	8		38.98	8	
	F = 5.41		F = .81	F = .81		F = .21

WORD DISCRIMINATION

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.36	2	.18	6.22	2	3.11
Columns	.87	2	.43	3.55	2	1.78
Error	.40	4	.10	5.69	4	1.42
Total	1.63			15.46	8	
	F = 1.81		F = 4.36	F = 2.18		F = 1.25

READING

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.33	2	1.67	25.89	2	12.95
Columns	.12	2	.06	6.06	2	3.03
Error	.49	4	.12	43.48	4	10.87
Total	3.94	8		75.43	8	
	F = 13.62*		F = .49	F = 1.19		F = .28

TABLE 4.04 (continued)

PRINCIPALS' AREA OF PREPARATION

ARITHMETIC COMPUTATION 2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.44	2	.72	3.55	2	1.78
Columns	8.73	2	4.37	23.42	2	11.71
Error	4.04	4	1.01	12.36	4	3.09
Total	14.21	8		39.33	8	
	F = .71		F = 4.32	F = .57		F = 3.79

ARITHMETIC PROBLEM SOLVING AND CONCEPTS 2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.52	2	.26	106.07	2	53.04
Columns	2.64	2	1.32	87.93	2	43.97
Error	.87	4	.22	345.56	4	86.39
Total	4.03	8		539.56	8	
	F = 1.20		F = 6.07	F = .61		F = .51

TABLE 4.04 (continued)

PRINCIPALS' AREA OF PREPARATION

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.52	2	2.26	.94	2	.47
Columns	1.86	2	.93	19.17	2	9.59
Error	3.82	4	.96	17.68	4	4.42
Total	10.20	8		37.79	8	
	F = 2.36		F = .97	F = .11		F = 2.17

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.19	2	.10	.21	2	.11
Columns	6.64	2	3.32	11.66	2	5.83
Error	3.42	4	.85	17.97	4	4.49
Total	10.25	8		29.84	8	
	F = .11		F = 3.88	F = .02		F = 1.30

READING

3 to 4 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	3.74	2	1.87
Columns	.78	2	.39
Error	7.11	4	1.78
Total	11.63	8	
	F = 1.05		F = .22

TABLE 4.04 (continued)

PRINCIPALS' AREA OF PREPARATION

ARITHMETIC COMPUTATION 3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	11.41	2	5.71	.71	2	.35
Columns	8.38	2	4.19	39.74	2	19.87
Error	5.21	4	1.30	13.72	4	3.43
Total	25.00	8		54.17	8	
	F = 4.38		F = 3.22	F = .10		F = 5.79

ARITHMETIC PROBLEM SOLVING AND CONCEPTS 3 to 4 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	13.46	2	6.73
Columns	5.38	2	2.69
Error	4.17	4	1.04
Total	23.01	8	
	F = 6.45		F = 2.58

TOTAL ADJUSTMENT SCORE 3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	15.26	2	7.63	6.49	2	3.24
Columns	7.31	2	3.66	16.60	2	8.30
Error	42.11	4	10.53	4.67	4	1.17
Total	64.68	8		27.76	8	
	F = .72		F = .35	F = 2.77		F = 7.10*

TABLE 4.04 (continued)

PRINCIPALS' AREA OF PREPARATION

WORD KNOWLEDGE

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	1.41	2	.71
Columns	11.16	2	5.58
Error	4.28	4	1.07
Total	16.85	8	

F = .66

F = 5.21

READING

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	1.06	2	.53
Columns	4.12	2	2.06
Error	13.98	4	3.50
Total	19.16	8	

F = .15

F = .59

ARITHMETIC COMPUTATION

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	31.34	2	15.67
Columns	164.77	2	82.39
Error	43.38	4	10.84
Total	239.49	8	

F = 1.44

F = 7.60*

TABLE 4.04 (continued)

PRINCIPALS' AREA OF PREPARATION

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	2.87	2	1.43
Columns	7.83	2	3.92
Error	5.87	4	1.47
Total	16.57	8	

F = .98

F = 2.67

TOTAL ADJUSTMENT SCORE

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	2.23	2	1.11
Columns	2.35	2	1.18
Error	35.78	4	8.95
Total	40.36	8	

F = .12

F = .13

TABLE 4.04 (continued)

PRINCIPALS' TOTAL TEACHING EXPERIENCE

WORD KNOWLEDGE

1 to 2 Year

1964-1965 1965-1966

Item	Grade Equivalent S.S.	 DF	 M.S.
Rows	.00	1	.00
Columns	1.19	2	.59
Error	1.30	2	.65
Total	2.49	5	

F = .00 F = .91

WORD DISCRIMINATION

1 to 2 Year

Item	Grade Equivalent S.S.	 DF	 M.S.
Rows	.36	1	.36
Columns	2.37	2	1.19
Error	.57	2	.29
Total	3.30	5	

F = 1.24 F = 4.13

TABLE 4.04 (continued)

PRINCIPALS' TOTAL TEACHING EXPERIENCE

READING

1 to 2 Year

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		1.09	1	1.09
Columns		5.70	2	2.85
Error		2.42	2	1.21
Total		9.21	5	
		F = .90		F = 2.35

ARITHMETIC TOTAL

1 to 2 Year

		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		.10	1	.10
Columns		7.21	2	3.61
Error		.02	2	.01
Total		7.33	5	
		F = 7.63		F = 285.82**

TABLE 4.04 (continued)

PRINCIPALS' TOTAL TEACHING EXPERIENCE

WORD KNOWLEDGE

2 to 3 Year

Item	1964-1965 Grade Equivalent S.S.	DF	M.S.	1965-1966 Grade Equivalent S.S.	DF	M.S.
Rows	.73	1	.73	3.00	1	3.00
Columns	.18	2	.09	.70	2	.35
Error	3.29	2	1.64	1.58	2	.79
Total	4.20	5		5.28	5	
	F = .45		F = .05	F = 3.79		F = .44

WORD DISCRIMINATION

2 to 3 Year

Item	1964-1965 Grade Equivalent S.S.	DF	M.S.	1965-1966 Grade Equivalent S.S.	DF	M.S.
Rows	.43	1	.43	3.65	1	3.65
Columns	.75	2	.37	.13	2	.06
Error	.21	2	.11	2.72	2	1.36
Total	1.39	5		6.50	5	
	F = 3.94		F = 3.45	F = 2.68		F = .05

TABLE 4.04 (continued)

PRINCIPALS' TOTAL TEACHING EXPERIENCE

READING

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.90	1	.90	6.70	1	6.70
Columns	.13	2	.06	.44	2	.22
Error	.40	2	.20	3.05	2	1.53
Total	1.43	5		10.19	5	
	F = 4.52		F = .32	F = 4.38		F = .14

ARITHMETIC COMPUTATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.07	1	1.07	.16	1	.16
Columns	6.25	2	3.13	17.36	2	8.68
Error	1.78	2	.89	.89	2	.45
Total	9.10	5		18.41	5	
	F = 1.20		F = 3.52	F = .36		F = 19.48*

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.42	1	.42	1.75	1	1.75
Columns	.76	2	.38	1.23	2	.62
Error	.63	2	.31	2.87	2	1.43
Total	1.81	5		5.85	5	
	F = 1.33		F = 1.22	F = 1.22		F = .43

TABLE 4.04 (continued)

PRINCIPALS' TOTAL TEACHING EXPERIENCE

WORD KNOWLEDGE

3 to 4 Year

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.05	1	.05	5.82	1	5.82
Columns	.89	2	.45	10.56	2	5.28
Error	.74	2	.37	2.30	2	1.15
Total	1.68	5		18.68	5	
	F = .13		F = 1.21	F = 5.06		F = 4.59

WORD DISCRIMINATION

3 to 4 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.47	1	.47	.44	1	.44
Columns	4.20	2	2.10	13.61	2	6.80
Error	.88	2	.44	13.33	2	6.67
Total	5.55	5		27.38	5	
	F = 1.07		F = 4.77	F = .07		F = 1.02

READING

3 to 4 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.61	1	.61	1.39	1	1.39
Columns	.16	2	.08	.61	2	.31
Error	.72	2	.36	4.15	2	2.07
Total	1.49	5		6.15	5	
	F = 1.71		F = .22	F = .67		F = .15

TABLE 4.04 (continued)

PRINCIPALS' TOTAL TEACHING EXPERIENCE

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.45	1	5.45	2.54	1	2.54
Columns	3.70	2	1.85	14.19	2	7.10
Error	.17	2	.08	4.10	2	2.05
Total	9.32	5		20.83	5	
	F = 64.44*		F = 21.89*	F = 1.23		F = 3.46

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.12	1	.12	.00	1	.00
Columns	5.19	2	2.60	7.62	2	3.81
Error	1.04	2	.52	9.24	2	4.62
Total	6.35	5		16.86	5	
	F = .23		F = 5.01	F = .00		F = .82

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.77	1	2.77	1.95	1	1.95
Columns	10.64	2	5.32	12.05	2	6.02
Error	9.94	2	4.97	3.79	2	1.90
Total	23.35	5		17.79	5	
	F = .56		F = 1.07	F = 1.03		F = 3.17

TABLE 4.04 (continued)

PRINCIPALS' TOTAL TEACHING EXPERIENCE

WORD KNOWLEDGE

4 to 5 Year

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		.91	1	.91
Columns		7.87	2	3.93
Error		3.32	2	1.66
Total		12.10	5	

F = .55 F = 2.37

READING

4 to 5 Year

		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		.63	1	.63
Columns		2.89	2	1.45
Error		6.59	2	3.30
Total		10.11	5	

F = .19 F = .44

TABLE 4.04 (continued)

PRINCIPALS' TOTAL TEACHING EXPERIENCE

ARITHMETIC COMPUTATION

4 to 5 Year

1964-1965

1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	3.21	1	3.21
Columns	165.2	2	82.60
Error	12.36	2	6.18
Total	180.77	5	
	F = .52		F = 13.37

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	1.11	1	1.11
Columns	6.55	2	3.27
Error	.70	2	.35
Total	8.36	5	
	F = 3.14		F = 9.28

TOTAL ADJUSTMENT SCORE

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	2.46	1	2.46
Columns	2.17	2	1.09
Error	5.47	2	2.73
Total	10.10	5	
	F = .90		F = .40

TABLE 4.04 (continued)

YEARS IN PRESENT POSITION

WORD KNOWLEDGE

1 to 2 Year

1964-1965

1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	10.25	2	5.13
Columns	2.03	2	1.01
Error	3.17	4	.79
Total	15.45	8	

F = 6.48

F = 1.28

WORD DISCRIMINATION

1 to 2 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	18.72	2	9.36
Columns	3.44	2	1.72
Error	2.42	4	.60
Total	24.58	8	

F = 15.48*

F = 2.85

TABLE 4.04 (continued)

YEARS IN PRESENT POSITION

READING 1 to 2 Year

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		14.25	2	7.13
Columns		6.24	2	3.12
Error		3.36	4	.84
Total		23.85	8	
		F = 8.48*		F = 3.71

ARITHMETIC TOTAL 1 to 2 Year

		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		.69	2	.34
Columns		14.54	2	7.27
Error		9.31	4	2.33
Total		24.54	8	
		F = .15		F = 3.12

TABLE 4.04 (continued)

YEARS IN PRESENT POSITION

WORD KNOWLEDGE

2 to 3 Year

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	14.15	2	7.07	9.45	2	4.73
Columns	2.98	2	1.49	1.08	2	.54
Error	10.10	4	2.52	20.82	4	5.20
Total	27.23	8		31.35	8	
	F = 2.80		F = .59	F = .91		F = .10

WORD DISCRIMINATION

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.04	2	.02	3.49	2	1.75
Columns	.02	2	.01	3.68	2	1.84
Error	.04	4	.01	8.23	4	2.06
Total	.10	8		15.40	8	
	F = 2.03		F = .95	F = .85		F = .90

READING

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	9.61	2	4.80	6.15	2	3.08
Columns	1.12	2	.56	4.03	2	2.01
Error	8.65	4	2.16	27.81	4	6.95
Total	19.38	8		37.99	8	
	F = 2.22		F = .26	F = .44		F = .29

TABLE 4.04 (continued)

YEARS IN PRESENT POSITION

ARITHMETIC COMPUTATION 2 to 3 Year

Item	1964-1965 Grade Equivalent S.S.	DF	M.S.	1965-1966 Grade Equivalent S.S.	DF	M.S.
Rows	5.41	2	2.70	.46	2	.23
Columns	10.60	2	5.30	23.32	2	11.66
Error	17.12	4	4.28	19.41	4	4.85
Total	33.13	8		43.19	8	
	F = .63		F = 1.24	F = .05		F = 2.40

ARITHMETIC PROBLEM SOLVING AND CONCEPTS 2 to 3 Year

Item	Grade Equivalent S.S.	DF	M.S.	Grade Equivalent S.S.	DF	M.S.
Rows	1.22	2	.61	1.96	2	.98
Columns	.72	2	.36	5.75	2	2.88
Error	4.15	4	1.04	29.58	4	7.39
Total	6.09	8		37.29	8	
	F = .59		F = .35	F = .13		F = .39

TABLE 4.04 (continued)

YEARS IN PRESENT POSITION

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.17	2	.09	5.20	2	2.60
Columns	2.43	2	1.22	47.30	2	23.65
Error	8.81	4	2.20	19.14	4	4.79
Total	11.41	8		71.64	8	
	F = .04		F = .55	F = .54		F - 4.94

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.00	2	.00	4.92	2	2.46
Columns	.12	2	.06	20.01	2	10.00
Error	.00	4	.00	7.13	4	1.78
Total	.12	8		32.06	8	
	F = .45		F = 77.96**	F = 1.38		F = 5.61

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.12	2	.56	2.21	2	1.11
Columns	.77	2	.39	12.33	2	6.17
Error	7.67	4	1.92	14.33	4	5.58
Total	9.56	8		28.87	8	
	F = .29		F = .20	F = .31		F = 1.72

TABLE 4.04 (continued)

YEARS IN PRESENT POSITION

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.24	2	1.12	28.48	2	14.24
Columns	6.50	2	3.25	32.82	2	16.41
Error	12.50	4	3.12	34.57	4	8.64
Total	21.24	8		95.87	8	
	F = .36		F = 1.04	F = 1.65		F = 1.90

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.82	2	1.41	2.44	2	1.22
Columns	7.94	2	3.97	16.31	2	8.16
Error	11.36	4	2.84	79.76	4	19.94
Total	22.12	8		98.51	8	
	F = .50		F = 1.40	F = .06		F = .41

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.31	2	1.15	29.30	2	14.65
Columns	34.63	2	17.32	43.00	2	21.50
Error	32.97	4	8.24	80.42	4	20.11
Total	69.91	8		152.72	8	
	F = .14		F = 2.10	F = .73		F = 1.07

TABLE 4.04 (continued)

YEARS IN PRESENT POSITION

WORD KNOWLEDGE

4 to 5 Year

Item	1964-1965	1965-1966		
		Grade Equivalent		
		S.S.	DF	M.S.
Rows		12.43	2	6.21
Columns		12.62	2	6.31
Error		4.14	4	1.03
Total		29.19	8	

F = 6.01

F = 6.10

READING

4 to 5 Year

Item	1964-1965	1965-1966		
		Grade Equivalent		
		S.S.	DF	M.S.
Rows		15.18	2	7.59
Columns		5.39	2	2.69
Error		10.15	4	2.54
Total		30.72	8	

F = 2.99

F = 1.06

TABLE 4.04 (continued)

YEARS IN PRESENT POSITION

ARITHMETIC COMPUTATION

4 to 5 Year

1964-1965

1965-1966

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	16.96	2	8.48
Columns	156.85	2	78.42
Error	63.57	4	15.89
Total	237.38	8	
	F = .53		F = 4.93

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	3.41	2	1.71
Columns	12.58	2	6.29
Error	6.81	4	1.70
Total	22.80	8	
	F = 1.00		F = 3.70

TOTAL ADJUSTMENT SCORE

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	1.69	2	.85
Columns	2.61	2	1.31
Error	26.74	4	6.68
Total	31.04	8	
	F = .13		F = .20

TABLE 4.04 (continued)

ADMINISTRATIVE EXPERIENCE WITH N.G.

WORD KNOWLEDGE

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.95	1	5.95	.02	1	.02
Columns	8.94	1	8.94	2.12	2	1.06
Error	5.95	1	5.95	.42	2	.21
Total	20.84	3		2.56	5	
	F = 1.		F = 1.50	F = .11		F = 5.03

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	8.73	1	8.73	.02	1	.02
Columns	15.96	1	15.96	.12	1	.12
Error	8.73	1	8.73	.02	1	.02
Total	33.42	3		.16	3	
	F = 1.		F = 1.83	F = 1.		F = 5.44

TABLE 4.04 (continued)

ADMINISTRATIVE EXPERIENCE WITH N.G.

READING

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	14.06	1	14.06	.00	1	.00
Columns	18.84	1	18.84	.40	1	.40
Error	14.06	1	14.06	.00	1	.00
Total	46.96	3		.40	3	
	F = 1.		F = 1.34	F = 1.		F = 645.16*

ARITHMETIC TOTAL

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.03	1	.03	.10	1	.10
Columns	14.52	1	14.52	3.71	2	1.85
Error	.03	1	.03	1.14	2	.57
Total	14.58	3		4.95	5	
	F = 1.		F = 448.03*	F = .18		F = 3.25

TABLE 4.04 (continued)

ADMINISTRATIVE EXPERIENCE WITH N.G.

WORD KNOWLEDGE

2 to 3 Year

Item	1964-1965 Grade Equivalent S.S.	DF	M.S.	1965-1966 Grade Equivalent S.S.	DF	M.S.
Rows	.06	1	.06	5.88	1	5.88
Columns	.32	2	.16	.10	2	.05
Error	.82	2	.41	9.24	2	4.62
Total	1.20	5		15.22	5	
	F = .15		F = .39	F = 1.27		F = .01

WORD DISCRIMINATION

2 to 3 Year

Item	Grade Equivalent S.S.	DF	M.S.	Grade Equivalent S.S.	DF	M.S.
Rows	.01	1	.01	1.56	1	1.56
Columns	.38	2	.19	1.36	2	.68
Error	.48	2	.24	.39	2	.20
Total	.87	5		3.31	5	
	F = .04		F = .80	F = 7.99		F = 3.49

READING

2 to 3 Year

Item	Grade Equivalent S.S.	DF	M.S.	Grade Equivalent S.S.	DF	M.S.
Rows	.46	1	.46	10.04	1	10.04
Columns	.11	2	.05	.89	2	.45
Error	3.53	2	1.77	9.20	2	4.60
Total	4.10	5		20.13	5	
	F = .26		F = .03	F = 2.18		F = .10

TABLE 4.04 (continued)

ADMINISTRATIVE EXPERIENCE WITH N.G.

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.15	1	.15	1.67	1	1.67
Columns	3.79	2	1.89	7.13	2	3.57
Error	4.34	2	2.17	1.76	2	.88
Total	8.28	5		10.56	5	
	F = .07		F = .87	F = 1.91		F = 4.06

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.45	1	1.45	1.31	1	1.31
Columns	.54	2	.27	1.12	2	.56
Error	1.22	2	.61	7.36	2	3.68
Total	3.21	5		9.79	5	
	F = 2.38		F = .45	F = .36		F = .15

TABLE 4.04 (continued)

ADMINISTRATIVE EXPERIENCE WITH N.G.

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.60	1	.60	5.51	1	5.51
Columns	.52	2	.26	16.49	2	8.25
Error	1.61	2	.81	3.69	2	1.84
Total	2.73	5		25.69	5	
	F = .75		F = .32	F = 2.99		F = 4.47

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.66	1	4.66	.21	1	.21
Columns	2.49	2	1.25	7.95	2	3.98
Error	10.34	2	5.17	3.42	2	1.71
Total	17.49	5		11.58	5	
	F = .90		F = .24	F = .12		F = 2.33

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	19.55	1	19.55	1.21	1	1.21
Columns	11.73	2	5.87	4.74	2	2.37
Error	15.89	2	7.94	1.42	2	.71
Total	47.17	5		7.37	5	
	F = 2.46		F = .74	F = 1.70		F = 3.33

TABLE 4.04 (continued)

ADMINISTRATIVE EXPERIENCE WITH N.G.

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	7.75	1	7.75	.08	1	.08
Columns	22.84	2	11.42	22.03	2	11.01
Error	8.27	2	4.13	1.06	2	.53
Total	38.86	5		23.17	5	
	F = 1.88		F = 2.76	F = .15		F = 20.69*

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	11.70	1	11.70	2.08	1	2.08
Columns	15.43	2	7.71	4.99	2	2.50
Error	5.67	2	2.83	1.48	2	.74
Total	32.80	5		8.55	5	
	F = 4.13		F = 2.72	F = 2.81		F = 3.38

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.38	1	1.38	22.27	1	22.27
Columns	2.94	2	1.47	8.25	2	4.12
Error	5.37	2	2.69	2.93	2	1.46
Total	9.69	5		33.45	5	
	F = .51		F = .55	F = 15.21		F = 2.82

TABLE 4.04 (continued)

ADMINISTRATIVE EXPERIENCE WITH N.G.

WORD KNOWLEDGE

4 to 5 Year

1964-1965 | 1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	3.12	1	3.12
Columns	5.41	2	2.71
Error	.04	2	.02
Total	8.57	5	

F = 147.98 F = 128.18*

READING

4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	.44	1	.44
Columns	1.91	2	.96
Error	.20	2	.10
Total	2.55	5	

F = 4.47 F = 9.78

TABLE 4.04 (continued)

ADMINISTRATIVE EXPERIENCE WITH N.G.

4 to 5 Year

ARITHMETIC COMPUTATION

1964-1965 | 1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	1.12	1	1.12
Columns	62.26	2	31.13
Error	49.30	2	24.65
Total	112.68	5	
	F = .05		F = 1.26

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	.07	1	.07
Columns	2.87	2	1.43
Error	2.29	2	1.14
Total	5.23	5	
	F = .06		F = 1.25

TOTAL ADJUSTMENT SCORE

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	.06	1	.06
Columns	1.14	2	.57
Error	4.29	2	2.15
Total	5.49	5	
	F = .03		F = .27

TABLE 4.04 (continued)

PRINCIPALS' TOTAL ADMINISTRATIVE EXPERIENCE

WORD KNOWLEDGE

1 to 2 Year

1964-1965

1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	1.40	2	.70
Columns	2.54	2	1.27
Error	7.57	4	1.89
Total	11.51	8	

F = .37

F = .67

WORD DISCRIMINATION

1 to 2 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	5.89	2	2.94
Columns	3.21	2	1.61
Error	9.12	4	2.28
Total	18.22	8	

F = 1.29

F = .70

TABLE 4.04 (continued)

PRINCIPALS' TOTAL ADMINISTRATIVE EXPERIENCE

READING

1 to 2 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	7.85	2	3.93
Columns	5.80	2	2.90
Error	5.31	4	1.33
Total	18.96	8	

F = 2.96

F = 2.19

ARITHMETIC TOTAL

1 to 2 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	1.10	2	.55
Columns	7.20	2	3.60
Error	4.42	4	1.10
Total	12.72	8	

F = .50

F = 3.26

TABLE 4.04 (continued)

PRINCIPALS' TOTAL ADMINISTRATIVE EXPERIENCE

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	11.56	2	5.78	5.09	2	2.55
Columns	3.57	2	1.79	2.16	2	1.08
Error	6.84	4	1.71	3.42	4	.85
Total	21.97	8		10.67	8	
	F = 3.38		F = 1.04	F = 2.98		F = 1.27

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.81	2	.41	5.20	2	2.60
Columns	2.25	2	1.12	.92	2	.46
Error	3.66	4	.91	6.10	4	1.52
Total	6.72	8		12.22	8	
	F = .45		F = 1.23	F = 1.71		F = .30

READING

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	7.76	2	3.88	10.70	2	5.35
Columns	1.69	2	.84	5.03	2	2.52
Error	3.77	4	.94	12.95	4	3.24
Total	13.22	8		28.68	8	
	F = 4.12		F = .90	F = 1.65		F = .78

TABLE 4.04 (continued)

PRINCIPALS' TOTAL ADMINISTRATIVE EXPERIENCE

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.84	2	.42	2.78	2	1.39
Columns	9.26	2	4.63	17.31	2	8.66
Error	9.28	4	2.32	2.35	4	.59
Total	19.38	8		22.44	8	
	F = .18		F = 2.00	F = 2.36		F = 14.71*

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.01	2	.00	1.89	2	.95
Columns	1.94	2	.97	.59	2	.30
Error	1.21	4	.30	7.17	4	1.79
Total	3.16	8		9.65	8	
	F = .01		F = 3.19	F = .53		F = .16

TABLE 4.04 (continued)

PRINCIPALS' TOTAL ADMINISTRATIVE EXPERIENCE

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.04	2	.02	25.51	2	12.76
Columns	3.16	2	1.58	34.69	2	17.35
Error	5.50	4	1.38	34.17	4	8.54
Total	8.70	8		94.37	8	
	F = .02		F = 1.15	F = 1.49		F = 2.03

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.52	2	.26	10.24	2	5.12
Columns	7.16	2	3.58	19.26	2	9.63
Error	2.98	4	.74	9.40	4	2.35
Total	10.66	8		38.90	8	
	F = .35		F = 4.81	F = 2.18		F = 4.10

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.89	2	1.94	16.38	2	8.19
Columns	.74	2	.37	39.83	2	19.92
Error	.97	4	.24	102.32	4	25.58
Total	5.60	8		158.53	8	
	F = 8.01*		F = 1.52	F = .32		F = .78

TABLE 4.04 (included)

PRINCIPALS' TOTAL ADMINISTRATIVE EXPERIENCE

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.39	2	1.20	6.44	2	3.22
Columns	8.31	2	4.16	21.45	2	10.72
Error	21.52	4	5.38	33.51	4	8.38
Total	32.22	8		61.40	8	
	F = .22		F = .77	F = .38		F = 1.28

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	30.61	2	15.31	6.91	2	3.45
Columns	18.71	2	9.35	4.99	2	2.49
Error	72.06	4	18.02	7.33	4	1.83
Total	121.38	8		19.23	8	
	F = .85		F = .52	F = 1.88		F = 1.36

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	5.27	2	2.63	3.53	2	1.76
Columns	8.19	2	4.10	12.05	2	6.03
Error	14.10	4	3.53	9.13	4	2.28
Total	27.56	8		24.71	8	
	F = .75		F = 1.16	F = .77		F = 2.64

TABLE 4.04 (included)

PRINCIPALS' TOTAL ADMINISTRATIVE EXPERIENCE

WORD KNOWLEDGE 4 to 5 Year

1964-1965 1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	6.27	2	3.14
Columns	22.54	2	11.27
Error	10.60	4	2.65
Total	39.41	8	

F = 1.18 F = 4.25

READING 4 to 5 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	22.73	2	11.37
Columns	11.02	2	5.51
Error	8.06	4	2.02
Total	41.81	8	

F = 5.64 F = 2.73

TABLE 4.04 (continued)

PRINCIPALS' TOTAL ADMINISTRATIVE EXPERIENCE

ARITHMETIC COMPUTATION

4 to 5 Year

1964-1965

1965-1966

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	4.23	2	2.12
Columns	182.00	2	91.00
Error	86.33	4	21.58
Total	272.56	8	

F = .10

F = 4.22

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	4.83	2	2.42
Columns	7.09	2	3.54
Error	6.56	4	1.64
Total	18.48	8	

F = 1.47

F = 2.16

TOTAL ADJUSTMENT SCORE

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	.47	2	.23
Columns	6.53	2	3.27
Error	6.18	4	1.54
Total	13.18	8	

F = .15

F = 2.12

TABLE 4.04 (continued)

PRINCIPALS' INVENTORY

WORD KNOWLEDGE

1 to 2 Year

1964-1965

1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	3.89	2	1.95
Columns	2.78	2	1.39
Error	17.87	4	4.47
Total	24.54	8	

F = .44

F = .31

WORD DISCRIMINATION

1 to 2 Year

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	.84	2	.42
Columns	2.37	2	1.18
Error	24.48	4	6.12
Total	27.69	8	

F = .07

F = .19

TABLE 4.04 (continued)

PRINCIPALS' INVENTORY

READING 1 to 2 Year

	1964-1965	1965-1966		
		Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		17.12	2	8.56
Columns		3.61	2	1.80
Error		25.26	4	6.32
Total		45.99	8	
		F = 1.36		F = .29

ARITHMETIC TOTAL 1 to 2 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	.82	2	.41
Columns	4.52	2	2.26
Error	2.00	4	.50
Total	7.34	8	
	F = .82		F = 4.51

TABLE 4.04 (continued)

PRINCIPALS' INVENTORY

WORD KNOWLEDGE

2 to 3 Year

Item	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	11.24	2	5.62	7.88	2	3.94
Columns	6.61	2	3.30	1.99	2	1.00
Error	15.04	4	3.76	29.84	4	7.46
Total	32.89	8		39.71	8	
	F = 1.50		F = .88	F = .53		F = .13

WORD DISCRIMINATION

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	4.26	2	2.13	2.41	2	1.20
Columns	3.31	2	1.65	3.35	2	1.68
Error	4.62	4	1.16	7.47	4	1.87
Total	12.19	8		13.23	8	
	F = 1.84		F = 1.43	F = .64		F = .90

READING

2 to 3 Year

Item	Grade Equivalent			Grade Equivalent		
	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	11.35	2	5.68	20.77	2	10.39
Columns	1.21	2	.60	2.31	2	1.16
Error	6.58	4	1.64	38.25	4	9.56
Total	19.14	8		61.33	8	
	F = 3.45		F = .37	F = 1.09		F = .12

TABLE 4.04 (continued)

PRINCIPALS' INVENTORY

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.36	2	1.18	.22	2	.11
Columns	11.00	2	5.50	13.82	2	6.91
Error	8.15	4	2.04	18.82	4	4.71
Total	21.51	8		32.86	8	
	F = .58		F = 2.70	F = .02		F = 1.47

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.52	2	.26	16.78	2	8.39
Columns	4.45	2	2.23	2.44	2	1.22
Error	4.37	4	1.09	18.86	4	4.71
Total	9.34	8		38.08	8	
	F = .24		F = 2.04	F = 1.78		F = .26

TABLE 4.04 (continued)

PRINCIPALS' INVENTORY

3 to 4 Year

WORD KNOWLEDGE

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.96	2	.48	1.32	2	.66
Columns	3.18	2	1.59	12.14	2	6.07
Error	1.77	4	.44	17.29	4	4.32
Total	5.91	8		30.75	8	
	F = 1.09		F = 3.60	F = .15		F = 1.40

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.24	2	.12	.32	2	.16
Columns	10.66	2	5.33	3.65	2	1.83
Error	.38	4	.10	5.01	4	1.25
Total	11.28	8		8.98	8	
	F = 1.23		F = 55.57**	F = .13		F = 1.46

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.00	2	.50	.27	2	.14
Columns	.73	2	.37	6.13	2	3.07
Error	5.16	4	1.29	12.50	4	3.13
Total	6.89	8		18.90	8	
	F = .39		F = .28	F = .04		F = .98

TABLE 4.04 (continued)

PRINCIPALS' INVENTORY

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	3.33	2	1.67	11.67	2	5.84
Columns	8.53	2	4.26	36.92	2	18.46
Error	11.40	4	2.85	16.66	4	4.17
Total	23.26	8		65.25	8	
	F = .58		F = 1.50	F = 1.40		F = 4.43

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.19	2	.60	9.03	2	4.52
Columns	9.38	2	4.69	8.66	2	4.33
Error	6.55	4	1.64	7.59	4	1.90
Total	17.12	8		25.28	8	
	F = .36		F = 2.86	F = 2.38		F = 2.28

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.33	2	.67	1.64	2	.82
Columns	18.04	2	9.02	3.71	2	1.85
Error	41.46	4	10.37	3.39	4	.85
Total	60.83	8		8.74	8	
	F = .06		F = .87	F = .97		F = 2.19

TABLE 4.04 (continued)

PRINCIPALS' INVENTORY

WORD KNOWLEDGE

4 to 5 Year

	1964-1965	1965-1966		
	Grade Equivalent	Grade Equivalent		
Item		S.S.	DF	M.S.
Rows		7.52	2	3.76
Columns		10.82	2	5.41
Error		14.91	4	3.73
Total		33.25	8	
		F = 1.01		F = 1.45

READING

4 to 5 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	2.45	2	1.23
Columns	4.24	2	2.12
Error	1.35	4	.34
Total	8.04	8	
	F = 3.63		F = 6.28

TABLE 4.04 (continued)

PRINCIPALS' INVENTORY

4 to 5 Year

ARITHMETIC COMPUTATION

1964-1965 1965-1966

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	52.94	2	26.47
Columns	57.27	2	28.63
Error	53.41	4	13.35
Total	163.62	8	

F = 1.98 F = 2.14

4 to 5 Year

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	6.83	2	3.42
Columns	14.40	2	7.20
Error	21.53	4	5.38
Total	42.76	8	

F = .63 F = 1.34

4 to 5 Year

TOTAL ADJUSTMENT SCORE

Item	Grade Equivalent		
	S.S.	DF	M.S.
Rows	6.52	2	3.26
Columns	15.72	2	7.86
Error	23.59	4	5.90
Total	45.83	8	

F = .55 F = 1.33

TABLE 4.04 (continued)

COMMUNITY TYPES

WORD KNOWLEDGE

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.00	1	.00	29.88	3	9.96
Columns	7.22	2	3.61	5.63	1	5.63
Error	3.22	2	1.61	11.69	3	3.90
Total	10.44	5		47.20	7	
	F = .00		F = 2.24	F = 2.55		F = 1.44

WORD DISCRIMINATION

1 to 2 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	50.48	2	25.24	3.24	1	3.24
Columns	7.44	1	7.44	37.86	3	12.62
Error	9.16	2	4.58	13.14	3	4.38
Total	67.08	5		54.24	7	
	F = 5.51		F = 1.62	F = .74		F = 2.88

TABLE 4.04 (continued)

COMMUNITY TYPES

READING

1 to 2 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	156.16	2	78.08	2.28	1	2.28
Columns	30.02	1	30.02	33.77	3	11.26
Error	30.75	2	15.37	17.71	3	5.90
Total	216.93	5		53.76	7	
	F = 5.08		F = 1.95	F = .39		F = 1.91

ARITHMETIC TOTAL

1 to 2 Year

	Grade Equivalent		
Item	S.S.	DF	M.S.
Rows	1.10	1	1.10
Columns	.35	2	.17
Error	4.84	2	2.42
Total	6.29	5	
	F = .45		F = .07

TABLE 4.04 (continued)

COMMUNITY TYPES

WORD KNOWLEDGE

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.54	1	1.54	.17	1	.17
Columns	19.66	3	6.55	11.66	3	3.89
Error	.76	3	.25	4.52	3	1.51
Total	21.96	7		16.35	7	
	F = 6.10		F = 25.97*	F = .12		F = 2.58

WORD DISCRIMINATION

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.30	1	1.30	.01	1	.01
Columns	4.85	3	1.62	2.40	3	.80
Error	1.49	3	.50	6.36	3	2.12
Total	7.64	7		8.77	7	
	F = 2.60		F = 3.25	F = .01		F = .38

READING

2 to 3 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.77	1	.77	1.34	1	1.34
Columns	9.74	3	3.25	10.46	3	3.49
Error	1.93	3	.64	1.41	3	.47
Total	12.44	7		13.21	7	
	F = 1.19		F = 5.03	F = 2.86		F = 7.43

TABLE 4.04 (continued)

COMMUNITY TYPES

ARITHMETIC COMPUTATION

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.14	1	.14	.01	1	.01
Columns	17.18	3	5.73	3.13	3	1.04
Error	1.19	3	.40	2.28	3	.76
Total	18.51	7		5.42	7	
	F = .35		F = 14.40*	F = .01		F = 1.37

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

2 to 3 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.16	1	.16	3.16	1	3.16
Columns	12.67	3	4.22	9.47	3	3.16
Error	1.60	3	.53	2.81	3	.94
Total	14.43	7		15.44	7	
	F = .30		F = 7.91	F = 3.38		F = 3.37

TABLE 4.04 (continued)

COMMUNITY TYPES

WORD KNOWLEDGE

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.05	1	.05	7.90	1	7.90
Columns	2.95	3	.98	9.80	3	3.27
Error	.32	3	.11	16.29	3	5.43
Total	3.32	7		33.99	7	
	F = .42		F = 9.08	F = 1.46		F = .60

WORD DISCRIMINATION

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	1.83	1	1.83	.22	1	.22
Columns	5.15	3	1.72	22.72	3	7.57
Error	2.53	3	.84	26.09	3	8.70
Total	9.51	7		49.03	7	
	F = 2.17		F = 2.03	F = .03		F = .87

READING

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.01	1	.01	27.53	1	27.53
Columns	9.11	3	3.04	.43	3	.14
Error	.64	3	.21	22.37	3	7.46
Total	9.76	7		50.33	7	
	F = .05		F = 14.25*	F = 3.69		F = .02

TABLE 4.04 (continued)

COMMUNITY TYPES

ARITHMETIC COMPUTATION

3 to 4 Year

	1964-1965			1965-1966		
	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.09	1	.09	3.88	1	3.88
Columns	16.52	3	5.51	96.39	3	32.13
Error	2.94	3	.98	56.25	3	18.75
Total	19.55	7		156.52	7	
	F = .09		F = 5.61	F = .21		F = 1.71

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	.67	1	.67	2.47	1	2.47
Columns	2.99	3	1.00	56.54	3	18.85
Error	3.01	3	1.00	38.72	3	12.91
Total	6.67	7		97.73	7	
	F = .66		F = .99	F = .19		F = 1.46

TOTAL ADJUSTMENT SCORE

3 to 4 Year

	Grade Equivalent			Grade Equivalent		
Item	S.S.	DF	M.S.	S.S.	DF	M.S.
Rows	2.21	1	2.21	12.05	1	12.05
Columns	30.35	3	10.12	65.80	3	21.93
Error	7.38	3	2.46	24.92	3	8.31
Total	39.94	7		102.77	7	
	F = .90		F = 4.11	F = 1.45		F = 2.64

TABLE 4.04 (continued)

COMMUNITY TYPES

WORD KNOWLEDGE

4 to 5 Year

Item	1964-1965	1965-1966		
		Grade Equivalent		
		S.S.	DF	M.S.
Rows		.08	1	.08
Columns		43.45	3	14.48
Error		5.51	3	1.84
Total		49.04	7	
		F = .05		F = 7.89

READING

4 to 5 Year

Item			
	Grade Equivalent		
	S.S.	DF	M.S.
Rows	.00	1	.00
Columns	10.57	3	3.52
Error	6.85	3	2.28
Total	17.42	7	
	F = .00		F = 1.54

TABLE 4.04 (continued)

COMMUNITY TYPES

ARITHMETIC COMPUTATION

4 to 5 Year

1964-1965 1965-1966

Item	Grade Equivalent S.S.	DF	M.S.
Rows	87.91	1	87.91
Columns	54.88	3	18.29
Error	41.07	3	13.69
Total	183.86	7	

F = 6.42 F = 1.34

ARITHMETIC PROBLEM SOLVING AND CONCEPTS

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	.97	1	.97
Columns	3.31	3	1.10
Error	5.29	3	1.76
Total	9.57	7	

F = .55 F = .63

TOTAL ADJUSTMENT SCORE

4 to 5 Year

Item	Grade Equivalent S.S.	DF	M.S.
Rows	8.47	1	8.47
Columns	38.31	3	12.77
Error	10.18	3	3.39
Total	56.96	7	

F = 2.49 F = 3.76

TABLE 4.05

FACTORS INFLUENCING STUDENT ACHIEVEMENT AND ADJUSTMENT IN GRADED AND NONGRADED SCHOOLS

Student

				Reading		Arithmetic		School Placement	
				R	C	R	C	R	C
			Class						
READING	Wd. Discrim'tn.	64-65	1-2	.55	.27	.00	.09		
			2-3	.36	1.04	1.79	1.18		
			3-4	.48	2.21				
								1.00	1.00
		65-66	1-2	.31	1.14	.06	.86		
			2-3	.44	.47	.00	.02		
			3-4	2.87	.34	.02	.24		
								1.34	.23
	Word Knowledge	64-65	1-2	.20	.17	.24	1.61		
			2-3	.43	2.10	6.78*	4.05		
			3-4	.91	1.68	.53	3.07		
								.91*	1.44
		65-66	1-2	.66	1.15	.44	1.97		
			2-3	.85	.74	.14	.66		
			3-4	2.02	.29	4.63	1.35		
			4-5	.52	.60	.06	1.09		
								1.18*	1.13
	Reading	64-65	1-2	.29	.02	.16	.20		
			2-3	.63	.77	.47	8.22*		
			3-4	.87	.89				
								1.55	2.74
		65-66	1-2	.23	.50	.02	.91		
			2-3	1.79	.26	.60	.40		
			3-4	.57	.51	.62	.08		
			4-5	.97	4.93*	.01	1.39		
								1.12*	3.58
Arithmetic Computation		64-65	2-3	20.22*	17.64*	3.08	.20		
			3-4	1.53	4.28*				
								.82*	1.21
		65-66	2-3	.75	5.28*	.02	1.08		
			3-4	.15	3.20	1.97	22.54**		
			4-5	.20	.90	5.22	3.78		

TABLE 4.05 (continued)

ARITHMETIC	Arithmetic Problem Solving & Concepts	64-65	2-3	2.93	18.39*	.48	.67		
			3-4	.71	1.82				
								.17	.16
		65-66	2-3	2.16	1.68	.06	1.40		
			3-4	1.70	.98	2.96	2.25		
			4-5	4.32	11.43**	.03	2.76		
	Arithmetic Total	64-65	1-2	1.24	11.04*	.19	.25		
		65-66	1-2	2.33	.19	1.96	.19		
Total Adjustment Score		64-65	3-4	2.82	1.05				
		65-66	3-4	.73	1.40				
			4-5	.51	.81				

TABLE 4.05 (continued)

			Teacher					
			Age		Education		Preparation	
			R	C	R	C	R	C
HEADING	Wd. Discrim'tn.	64-65	1.18	1.78	3.16	1.64	.09	1.18
			.28	.19	1.77	1.16	1.67	2.47
			1.02	1.31	2.82	1.50	.90	1.52
		65-66	.58	1.38	.46	2.17	1.00	2.99
			3.56	.36	1.83	.92	1.19	.64
			4.95*	.05	2.59	7.36*	1.23	.17
	Word Knowledge	64-65	.63	1.20	.28	3.12	.02	2.60
			.29	.51	.38	1.25	2.58	.53
			.43	1.55	5.10*	2.30	.40	.75
		65-66	.74	1.48	1.34	3.08	1.15	2.02
			3.22	3.20	4.85	10.10*	1.65	3.47
			4.94*	.01	3.04	1.95	2.44	.63
			1.95	.72	1.57	.49	.50	1.29
	Reading	64-65	1.66	.18	.39	.81	.53	1.30
			.38	1.60	.35	.93	.31	.09
			1.07	2.49	.43	.27	.07	1.11
		65-66	1.11	.69	1.10	2.98	.67	2.07
			4.30*	1.10	1.28	3.94	.28	2.85
			4.95*	.66	.58	.48	1.21	.53
			1.23	1.15	2.54	2.58	2.95	4.20*
Arithmetic	Computation	64-65	.12	3.11	.09	.66	.51	2.71
			2.34	3.20	.43	3.36	.28	3.55
		65-66	.36	1.71	7.17	9.71*	2.19	6.64*
			1.03	3.25	.70	3.74	.62	2.08
			2.21	3.49	.04	.09	1.04	.18

TABLE 4.05 (continued)

ARITHMETIC	Arith. Prob. S. & C.	64-65	.38	2.25	1.18	6.42	1.01	3.55
			.77	.37	1.07	.85	1.00	1.27
		65-66	7.54**	5.57*	.09	6.54	1.48	5.01*
			.95	2.19			1.19	.51
			.42	1.14	2.54	3.38	.71	1.16
	Arith. Total	64-65	1.66	.18	1.63	.27	7.76*	1.63
		65-66	1.13	1.15	4.23	1.88	1.29	2.23
	Tot. Adj. Score	64-65	1.46	.33	.28	1.13	1.94	.79
		65-66	1.37	1.01	.71	1.10	.09	.70
			.57	1.57	2.25	4.48*	.79	1.31

TABLE 4.05 (continued)

Teacher					
Experience		Cont. Progress		Acceptance of NGS	
R	C	R	C	R	C
		4.48	9.24		
1.11	1.05	12.33	.58	1.53	.79
1.16	2.17	8.27	.97	.71	19.47**
.62	2.44	.03	.76	.04	.12
3.67	.12	.35	1.63	1.36	2.10
.13	.31	1.64	.69	1.82	2.02
		2.49	2.38		
.23	.89	5.93	.47	1.06	.32
.81	3.14	4.48	50.05*	1.68	.97
1.23	2.31	.27	.96	.29	.28
2.21	.08	1.00	.08	.85	.12
.05	.28	2.11	8.09	10.68*	8.55*
.01	.74			27.07**	122.93**
		1.22	3.20		
.19	1.72	19.05*	.18	1.63	.24
.87	4.59*	.30	3.11	.91	.65
1.59	.82	.02	.71	.76	.23
2.47	.91	1.12	.15	1.16	.28
.13	.54	.00	1.52	9.14*	9.66
.26	.77			.63	.79*
1.62	5.41*	5.22	.01	.64	2.03
1.33	3.43	.37	6.02	.59	2.24
.23	.87	.88	.29	.77	1.69
.66	1.97	.07	.72	.15	3.66
.95	1.11			.16	1.18

TABLE 4.05 (continued)

1.39	7.34*	1.03	.80	.28	1.09
.55	.39	.92	3.16	.54	5.05

1.23	3.44	.81	.34	1.61	.32
.45	1.71	.19	1.84	2.61	.83
.47	1.09			.45	.55

		9.35	13.33		

1.21	4.43*	.04	1.75	.11	1.32

1.23	.07			.75	2.25

.96	.70			1.04	4.07
.16	1.86			8.80*	5.14

TABLE 4.05 (continued)

			Principal					
			Age		Education		Preparation	
			R	C	R	C	R	C
READING	Wd. Discrim'tn.	64-65			1.46	.19		
			2.53	1.11	2.51	.98	1.81	4.36
			.44	2.11	24.24*	13.81	.11	3.88
		65-66	1.46	.67	1.26	.19	.09	.01
			3.58	.15	1.87	1.88	2.18	1.25
			.82	2.89	2.46	5.01	.02	1.30
	Word Knowledge	64-65			.90	.01		
			1.54	.57	1.88	.03	5.41	.81
			.05	1.05	10.07	.38	2.36	.97
		65-66	1.80	.27	2.11	.10	.16	.05
			4.62	1.22	1.81	.40	.81	.21
			.16	2.96	.11	1.85	.11	2.17
			.35	2.22	1.08	.36	.66	5.21
	Reading	64-65						
			2.30	.52	4.19	.05	13.62*	.49
			.22	.38	2.57	.08	1.05	.22
		65-66	3.77	1.03	.83	.02	.68	.01
			3.76	.09	1.95	.57	1.19	.28
			1.23	.74	.09	5.88		
			.90	.55	.11	.98	.15	.59
Arithmetic Computation		64-65	.61	2.42	.32	.49	.71	4.32
			4.06	3.05	.25	1.07	4.38	3.22
		65-66	.04	12.10*	41.96*	28.92*	.57	3.79
			2.67	3.44	2.28	6.37	.10	5.79
			1.81	7.33*	.39	1.61	1.44	7.60*

TABLE 4.05 (continued)

ARITHMETIC	Arith. Prob. S. & C.	64-65	.87	.85	1.30	.26	1.20	6.07
			2.50	5.03	.33	1.04	6.45	2.58
		65-66	.64	.74	2.39	.89	.61	.51
			.03	1.13	.03	1.07		
			.57	1.39	.00	1.19	.98	2.67
	Arith. Total	64-65			.03	.79		
		65-66	.31	1.98	2.37	5.53	.31	4.43
Tot. Adj. Score		64-65	1.37	1.04	1.42	3.76	.72	.35
		65-66	.32	1.27	.10	.36	2.77	7.10*
			1.18	.80	2.51	.09	.12	.13

TABLE 4.05 (continued)

Principal					
Experience		Yrs. Present Pos'tn.		Yrs. Adminis. NGS	
R	C	R	C	R	C
				1.00	1.83
3.94	3.45	2.03	.95	.04	.80
1.07	4.77	.45	77.96*	.90	.24
1.24	4.13	15.48*	2.85	1.00	5.44
2.68	.05	.85	.90	7.99	3.49
.07	1.02	1.38	5.61	.12	2.33
				1.00	1.50
.45	.05	2.80	.59	.15	.39
.13	1.21	.04	.55	.75	.32
.00	.91	6.48	1.28	.11	5.03
3.79	.44	.91	.10	1.27	.01
5.06	4.59	.54	4.94	2.99	4.47
.55	2.37	6.01	6.10	147.98	128.18**
				1.00	1.34
4.52	.32	2.22	.26	.26	.03
1.71	.22	.29	.20	2.46	.74
.90	2.35	8.48*	3.71	1.00	645.16*
4.38	.14	.44	.29	2.18	.10
.67	.15	.31	1.72	1.70	3.33
.19	.44	2.99	1.06	4.47	9.78
1.20	3.52	.63	1.24	.07	.87
64.44*	21.89*	.36	1.04	1.88	2.76
.36	19.48*	.05	2.40	1.91	4.06
1.23	3.46	1.65	1.90	.15	20.69*
.52	13.37	.53	4.93	.05	1.26

TABLE 4.05 (continued)

1.33	1.22	.59	.35	2.38	.45
.23	5.01	.50	1.40	4.13	2.72

1.22	.43	.13	.39	.36	.15
.00	.82	.06	.41	2.81	3.38
3.14	9.28	1.00	3.70	.06	1.25

				1.00	448.03*

7.63	285.82**	.15	3.12	.18	3.25

.56	1.07	.14	2.10	.51	.55

1.03	3.17	.73	1.07	15.21	2.82
.90	.40	.13	.20	.03	.27

TABLE 4.05 (continued)

Total Adminis. Exper.		Principal Acc'pt. of Nongrading		Socio-Econ. Status	
R	C	R	C	R	C
				5.51	1.62
.45	1.23	1.84	1.43	2.60	3.25
.35	4.81	1.23	55.57**	2.17	2.03
1.29	.70	.07	.19	.74	2.88
1.71	.30	.64	.90	.01	.38
2.18	4.10	.13	1.46	.03	.87
				.00	2.24
3.38	1.04	1.50	.88	6.10	25.97*
.02	1.15	1.09	3.60	.42	9.08
.37	.67	.44	.31	2.55	1.44
2.98	1.27	.53	.13	.12	2.58
1.49	2.03	.15	1.40	1.46	.60
1.18	4.25	1.01	1.45	.05	7.89
				5.08	1.95
4.12	.90	3.45	.37	1.19	5.03
8.01*	1.52	.39	.28	.05	14.25*
2.96	2.19	1.36	.29	.39	1.91
1.65	.78	1.09	.12	2.86	7.43
.32	.78	.04	.98	3.69	.02
5.64	2.73	3.63	6.28	.00	1.54
.18	2.00	.58	2.70	.35	14.40*
.22	.77	.58	1.50	.09	5.61
2.36	14.71*	.02	1.47	.01	1.37
.38	1.28	1.40	4.43	.21	1.71
.10	4.22	1.98	2.14	6.42	1.34

TABLE 4.05 (continued)

.01	3.19	.24	2.04	.30	7.91
.85	.52	.36	2.86	.66	.99

.53	.16	1.78	.26	3.38	3.37
1.88	1.36	2.38	2.28	.19	1.46
1.47	2.16	.63	1.34	.55	.63

				.45	.07

.50	3.26	.82	4.51		

.75	1.16	.06	.87	.90	4.11

.77	2.64	.97	2.19	1.45	2.64
.15	2.12	.55	1.33	2.49	3.76

TABLE 4.06

RELATION BETWEEN TEACHERS' CLASSROOM PERFORMANCE, DEMOGRAPHIC CHARACTERISTICS, KNOWLEDGE AND ACCEPTANCE OF THE PRINCIPALS OF THE NONGRADED SCHOOL

Type A - Nongraded School - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.157	-.138	-.176	-.275	-.175	-.249	.002	.000	.062	.110	.107	.087	-.335
2	-.014	-.039	-.081	-.307	-.208	-.175	-.144	.023	.111	.220	.044	.129	-.052
3	-.186	-.295	-.305	-.352	-.274	-.379	-.010	.103	.114	.026	.108	.091	-.338
4	.276	.366	.095	.084	.180	.301	.546	.282	.165	.183	.179	.030	-.216
5	.139	-.227	-.277	-.331	-.246	-.324	-.015	.072	.099	.007	.121	.088	-.339
6	-.107	-.012	-.065	-.184	-.088	-.124	-.134	.047	.025	.079	.010	.005	-.343
7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
8	-.165	-.190	-.262	-.365	-.245	-.327	-.067	.080	.062	.064	.112	.010	-.451
9	.033	-.028	.169	-.193	-.040	-.012	-.162	.175	.070	.191	.018	.064	-.011
10	-.112	.063	.210	.202	-.012	.101	.166	.153	.100	.007	.011	.086	.027

TABLE 4.06 (continued)

Type A - Nongraded School Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
11							.482	.286	.174	.106	.133	.165	.073
12							.467	.201	.134	.030	.114	.097	-.002
13							.149	.229	.230	.143	.011	.334	.042
14							.244	.245	.125	.078	.135	.173	.280
15							.306	.213	.008	.117	.200	.236	.147
16							.455	.334	.188	.022	.136	.261	.142
17								.236	.075	.114	.200	.102	-.037
18													.023
19													.006
20													.094
21													.027
22													.053

TABLE 4.06 (continued)

Type A - Nongraded School - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.180	-.141	-.036	-.041	-.209	-.154	.197	.163	.068	.061	.182	.208	.223
2	-.195	.102	.079	-.134	-.107	-.098	.126	.006	.060	-.107	.016	.292	-.163
3	-.228	-.142	-.109	-.172	-.394	-.289	.046	.201	.193	.165	.254	.231	.163
4	.027	.246	.262	.213	.159	.261	-.042	.189	.103	.116	.116	.071	.097
5	-.209	-.102	-.070	-.140	-.356	-.242	.047	.227	.207	.151	.269	.240	.166
6	-.180	-.080	-.077	.025	-.115	-.129	.220	.114	-.016	.055	.132	.095	.134
7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
8	-.263	-.124	-.065	-.100	-.348	-.250	.141	.253	.150	.157	.297	.255	.213
9	.107	-.077	.047	.160	.118	.116	.057	-.030	.036	.079	.127	.047	.056
10	.054	-.043	.247	.159	.234	.190	.137	.012	.195	-.042	-.028	-.029	-.107

TABLE 4.06 (continued)

Type A - Nongraded School - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
11							-.143	.292	-.106	.299	.224	.272	.018
12							.062	.109	.034	.040	.123	.176	.005
13							.048	.201	.063	.098	.071	-.099	.132
14							-.014	.338	.223	.352	.336	-.082	-.020
15							-.060	.422	.239	.315	.401	.315	-.023
16							-.046	.381	.182	.264	.331	.262	.020
17								.205	.204	-.119	-.059	-.064	.046
18													-.129
19													.090
20													.153
21													.328
22													.175

TABLE 4.06 (continued)

Type B - Nongraded School - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.252	.082	.033	-.028	.019	-.022	.062	.080	.083	.160	.111	.019	.196
2	.129	.009	.133	.033	.214	.145	.615	.063	.006	.206	.105	.204	.010
3	-.232	.226	.203	.158	.258	.181	-.104	.436	.098	.053	.347	.189	-.080
4	-.121	.080	.133	.067	.176	.101	.583	.077	.091	.096	.049	.126	-.157
5	-.259	.242	.235	.173	.301	.205	..070	.444	.122	.080	.349	.219	-.123
6	-.272	-.374	-.367	-.525	-.436	-.501	.093	.211	.144	.358	.194	.255	.178
7	-.135	.042	.041	-.219	-.026	-.053	.363	.066	.083	.078	.068	.058	.103
8	-.384	-.007	-.009	-.226	-.019	-.134	.221	.239	.195	.278	.178	.045	.038
9	.007	.093	.006	-.316	.029	-.005	-.021	.252	.143	.145	.258	.053	-.098
10	.242	.263	.288	.115	.081	.246	-.330	.082	.120	.019	.143	.027	-.261
11							.145	.212	.232	.282	.100	.156	-.159

TABLE 4.06 (continued)

Type B - Nongraded School - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12							.139	.305	.116	.010	.465	.095	-.185
13							.156	.153	.127	.139	.211	.232	.037
14							.098	.099	.160	.009	.140	.059	-.168
15							.493	.370	.047	.048	.641	.213	-.211
16							.309	.234	.107	.044	.476	.130	-.194
17								.213	.188	.024	.339	.252	.208
18													.044
19													.101
20													.130
21													.032
22													.083

TABLE 4.06 (continued)

Type B - Nongraded School - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.371	.340	-.028	-.188	-.395	-.169	-.067	-.013	.123	.107	.191	.071	.094
2	.102	-.017	.054	-.050	-.165	-.056	.617	.110	.042	.103	-.080	.231	.112
3	.347	.280	-.118	.205	-.295	.116	.200	.384	.360	.054	.408	-.049	.351
4	.044	.240	.257	-.084	.051	.181	.572	.155	.004	.138	.057	.098	.024
5	.343	.349	-.020	.163	-.259	.173	.390	.416	.337	.099	.404	-.011	.322
6	-.332	-.078	-.212	-.635	-.473	-.505	-.112	-.040	.206	.098	-.091	.211	.274
7	-.211	.352	.180	-.259	-.080	.037	.407	.109	.110	.121	.120	.113	.147
8	-.082	.260	-.096	-.402	-.487	-.219	.279	.250	-.027	.160	.213	.166	.036
9	.072	.252	.071	-.177	-.079	.090	.147	.104	.078	.056	.427	.250	.154
10	.024	.230	-.020	.050	.021	.124	.302	-.162	.053	.129	.215	.305	.556
11							.300	.472	.251	-.106	.161	-.001	.380

TABLE 4.06 (continued)

Type B - Nongraded School - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12							.009	.375	-.147	.328	.374	-.136	.002
13							.003	.269	-.009	.157	.126	.004	-.201
14							.108	.242	.149	-.004	.256	-.181	.308
15							.001	-.003	.317	-.196	-.007	.337	-.156
16							.156	.374	.339	.002	.224	.240	-.240
17								.372	.125	.008	.174	.351	-.209
18													-.008
19													-.003
20													-.171
21													-.234
22													.008

TABLE 4.06 (continued)

Type C - Nongraded School - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.036	-.080	.324	.196	.198	.231	.304	.159	.160	.208	.232	.194	-.339
2	.064	-.029	.219	.028	-.046	.005	-.104	.129	.146	.101	.159	.046	.087
3	-.104	-.056	.139	.010	.081	.028	.168	.028	.061	.055	.056	.040	-.233
4	-.168	-.017	.022	-.043	-.083	-.058	.272	.033	.122	.155	.250	.168	-.439
5	-.112	-.056	.138	.007	.074	.024	.183	.026	.052	.044	.071	.050	-.257
6	.043	-.022	.075	.178	.003	.077	.048	.178	.200	.220	.021	.232	-.045
7	.011	-.025	-.133	-.085	-.210	-.149	.041	.233	.019	.009	.237	.007	-.029
8	-.091	-.063	.161	.083	.067	.051	.194	.044	.031	.040	.053	.133	-.255
9	.193	-.048	.168	.258	.306	.327	.308	.265	.193	.318	.119	.257	-.202
10	.027	.018	.248	.162	.017	.205	.130	.181	.210	.230	.324	.120	-.202
11							-.031	.068	.027	.033	.030	.019	.000

TABLE 4.06 (continued)

Type C - Nongraded School - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12							.144	.073	.063	.067	.078	.076	.085
13							.232	.134	.120	.085	.167	-.035	-.027
14							.120	.017	.145	.023	.092	.113	-.012
15							.085	.121	.232	.120	.075	.125	-.035
16							.156	.156	.225	.137	.185	-.069	-.039
17								.047	.008	-.080	.095	.101	-.257
18													.231
19													.131
20													.148
21													.312
22													.105

TABLE 4.06 (continued)

Type C - Nongraded School - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	.256	.247	.522	.164	.207	.374	.282	.134	.220	.240	-.007	-.035	-.057
2	.044	.098	.305	.018	.140	.182	.116	.049	.056	.092	.101	.004	.068
3	.097	.167	.334	.085	.075	.192	.089	.077	.087	.056	.163	.146	-.065
4	.080	.067	.154	.043	.084	.066	.060	-.065	.029	-.045	.143	-.009	.084
5	.101	.168	.338	.086	.079	.193	.091	.071	.084	-.058	.150	.143	-.058
6	.133	.113	.046	-.125	.104	.101	.121	.223	.277	.325	-.241	.253	.031
7	-.022	.031	.081	-.119	.045	.013	-.138	.244	.227	-.229	.236	.251	.060
8	.152	.203	.328	.042	.112	.222	.155	-.004	-.008	.161	.060	.057	-.048
9	.229	.000	.189	.024	.027	.120	.140	-.176	.144	-.098	.121	-.051	-.040
10	.190	.205	.248	.094	.157	.244	.201	-.0946	.155	-.109	.153	-.081	.085
11							.174	.259	.352	.224	-.125	.217	.091

TABLE 4.06 (continued)

Type C - Nongraded School - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12							.238	.193	.247	.302	.215	.294	.045
13							.307	-.138	-.101	.179	.056	.078	.062
14							.132	-.183	.359	.278	.234	.263	-.007
15							.168	-.129	.241	.342	-.118	.215	.062
16							.295	.256	.377	.398	-.179	.274	.098
17								.101	.015	-.072	.012	.003	-.064
18													-.122
19													-.147
20													-.089
21													-.048
22													-.106

TABLE 4.06 (continued)

All Nongraded Schools - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.109	-.062	.040	-.053	.017	-.012	.145	.068	.039	.132	.135	.048	-.293
2	.085	-.024	.084	-.030	.005	.030	.270	.064	.016	.046	.084	.116	.044
3	-.147	-.053	-.067	-.141	-.038	-.122	.033	.096	.083	.041	.033	.041	-.275
4	.056	-.004	.078	.030	.102	.150	.420	.179	.143	.135	.159	.090	-.194
5	-.135	-.051	-.055	-.136	-.027	-.100	.092	.075	.068	.025	.051	.030	-.286
6	-.057	-.034	-.060	-.087	-.116	-.110	.009	.102	.063	.094	.035	.140	-.189
7	-.035	-.002	.014	-.067	-.021	-.020	.228	.006	.032	.024	.008	.011	.039
8	-.150	-.061	-.065	-.160	-.071	-.133	.111	.024	.020	.029	.056	.021	-.335
9	.118	-.020	.133	.014	.127	.145	.169	.097	.092	.206	.006	.093	-.043
10	.049	.016	.228	.161	.027	.182	.050	.119	.021	.091	.086	.028	-.038
11						.628	.143	.166	.085	.080	.043	.081	.034

TABLE 4.06 (continued)

All Nongraded Schools - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12						.207	.120	.059	.041	.058	.083	.057	.036
13						.722	.176	.132	.131	.115	.025	.145	.025
14						.623	.159	.089	.120	.032	.045	.021	.161
15						.818	.230	.070	.099	.000	.165	.111	.050
16							.274	.160	.183	.073	.062	.120	.057
17								.056	.051	.065	.063	.042	-.045
18									.481	.458	.525	.597	.089
19										.573	.523	.567	.047
20											.455	.489	.097
21												.489	.113
22													.064

TABLE 4.06 (continued)

All Nongraded Schools - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	.013	.112	.220	.026	-.038	-.091	.156	.005	-.054	-.070	.093	.079	.069
2	-.030	.011	.211	-.044	-.012	.029	.489	.033	.054	.044	.096	.021	.047
3	-.003	.062	.095	-.021	-.147	-.012	.035	.152	.092	.047	.221	.163	.015
4	.014	.190	.284	.052	.115	.175	.207	.060	.009	.066	-.039	-.001	.091
5	.000	.085	.130	-.016	-.128	.010	.066	.159	.093	.041	.213	.162	.026
6	-.073	.002	-.015	-.153	-.084	-.095	.124	-.057	.080	-.095	-.080	-.028	.095
7	-.079	.128	.101	-.103	-.007	.016	.234	-.020	-.004	-.014	.015	-.013	.049
8	-.036	.093	.129	-.080	-.145	-.020	.153	.126	.044	.005	.161	.142	.069
9	.157	-.004	.103	.058	.039	.104	.209	-.048	.003	.007	.099	-.011	.020
10	.098	.114	.234	.102	.172	.204	.229	.069	.148	.052	.056	.103	.014
11							.078	.168	.228	.226	.097	.198	.038

TABLE 4.06 (continued)

All Nongraded Schools - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12							.094	-.086	.165	.084	-.079	.237	.022
13							.197	.132	-.060	.043	.018	.034	.095
14							.068	.184	.244	.265	-.175	.146	.028
15							.078	.234	.250	.313	.224	.272	.023
16							.142	.229	.291	.290	.176	.266	.053
17								-.030	-.018	.051	.013	.059	.015
18													-.122
19													-.037
20													.003
21													.079
22													.021

TABLE 4.06 (continued)

Type D - Graded Schools - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.186	-.200	-.185	-.175	.109	-.138	.250	.132	.354	-.074	.140	.272	.005
2	-.041	-.011	-.232	.107	-.267	-.117	-.096	.334	.055	.411	.211	.225	.254
3	-.251	-.274	-.134	.000	-.036	-.161	.052	.194	.370	.035	.103	.265	.250
4	-.122	-.177	.109	-.055	-.143	-.098	.008	.169	.184	.214	.185	.266	-.488
5	-.286	-.330	-.072	.075	-.055	-.162	-.043	.240	.416	.098	.157	.339	.121
6	.120	.075	.053	-.098	.276	.049	.104	.157	.172	.139	.144	.218	.094
7	-.553	-.597	-.585	-.728	-.600	-.691	-.590	.097	.398	.396	.373	.360	.119
8	-.256	-.314	-.164	-.086	-.030	-.211	.027	.245	.382	.043	.114	.296	.256
9	-.021	.110	-.152	-.102	-.110	-.038	-.033	.529	.429	.225	.210	.210	-.060
10	-.291	-.311	-.294	-.458	-.184	-.338	-.252	.201	.303	.356	.202	.142	-.189
11							.506	.427	.039	-.049	.109	.112	.182

TABLE 4.06 (continued)

Type D - Graded Schools - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12							.566	.469	.010	.156	.199	.132	.051
13							.302	.153	.194	.124	.110	.139	.018
14							.419	.295	.238	.239	.266	.096	.174
15							.644	.374	.014	.134	.096	.101	.086
16							.578	.419	.054	.058	.159	.110	.102
17								.226	-.066	.051	.106	.195	-.021
18													-.016
19													-.212
20													-.075
21													-.233
22													-.237

TABLE 4.06 (continued)

Type D - Graded Schools - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.366	-.225	-.344	-.202	-.370	-.341	-.055	.136	.101	.149	-.001	.023	-.068
2	.178	.145	.063	.124	.166	.106	-.063	.126	.014	.122	.358	.175	.054
3	-.283	-.250	-.202	-.204	-.332	-.319	-.125	.285	.188	.078	.080	.264	.153
4	-.008	-.070	.446	.055	.144	.000	.282	.250	.160	.034	.199	.141	-.079
5	-.324	-.318	-.136	-.120	-.338	-.331	-.219	.346	.227	.102	.131	.313	.102
6	-.500	-.212	-.253	-.343	-.053	-.296	-.195	.013	.117	-.029	.015	-.020	-.023
7	.085	0	.014	-.018	.053	.035	-.110	.248	.267	.326	.188	.280	.240
8	-.386	-.298	-.226	-.278	-.330	-.382	-.143	.310	.185	.087	.087	.276	.154
9	.158	.412	.293	.207	.266	.287	.211	.312	.083	.072	-.025	-.192	-.042
10	-.151	.119	.144	-.061	.134	.008	.059	.104	-.092	.048	-.013	-.103	.191
11							.181	-.051	.179	.010	-.017	-.033	.024

TABLE 4.06 (continued)

Type D - Graded Schools - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12							.128	.207	.110	.162	.135	.019	.174
13							.270	.128	.421	.217	.177	.234	.056
14							.059	.017	.295	.244	.019	.164	.219
15							.160	.075	.150	.013	.169	-.043	.004
16							.164	-.096	.254	.166	-.039	.064	.117
17								.208	-.064	-.001	-.035	.112	-.069
18													.088
19													.122
20													-.192
21													-.461
22													.209

TABLE 4.06 (continued)

All Schools - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.153	-.095	-.089	-.104	-.020	-.125	.060	-.044	.008	.154	-.099	.034	.248
2	.0765	-.007	.082	.003	-.004	.047	.254	-.029	-.005	.023	.041	.056	.072
3		-.083	-.138	-.121	-.078	-.183	-.030	.105	.119	-.011	-.017	-.050	-.180
4	.084	.050	.213	.063	.163	.239	.475	.139	.096	.030	-.088	.015	-.171
5		-.082	-.110	-.097	-.071	-.164	.004	.094	.115	.013	.020	.059	-.213
6	-.012	-.024	-.026	-.079	-.044	-.056	.032	-.080	.041	.060	.012	.092	-.155
7	-.139	-.028	-.090	-.193	-.134	-.159	.098	.016	-.020	-.042	.050	.046	-.048
8	-.184	-.080	-.110	-.150	-.080	-.171	.056	.052	.068	.030	.031	.017	-.236
9	.103	.008	.128	.005	.108	.144	.182	.146	.129	.179	.019	.082	-.037
10	-.022	-.004	.113	.041	-.025	.045	-.097	.128	.054	.133	-.105	.052	-.061
11							.252	.201	-.067	-.029	.068	.058	-.074

TABLE 4.06 (continued)

All Schools - Pre-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12							.179	.043	.045	.083	.094	.073	.044
13							.318	.116	.056	.004	.031	.057	.044
14							.237	.118	-.047	.096	.103	.027	.167
15							.378	.110	.067	.016	.162	-.052	.070
16							.434	.177	-.101	.031	.108	-.030	.084
17								.063	.050	.024	.094	.133	-.015
18													.076
19													.015
20													.077
21													.058
22													.026

TABLE 4.06 (continued)

All Schools - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-.141	-.034	.047	-.081	-.187	-.108	.049	.021	-.015	-.016	.072	.051	.037
2	.044	.069	.191	.018	.079	.083	.450	.052	.042	.026	-.036	.016	.055
3	-.138	-.084	-.014	-.120	-.255	-.176	-.060	.165	.118	.061	.184	.165	.023
4	.102	.227	.314	.117	.207	.227	.300	.092	-.012	-.064	-.010	.039	.090
5	-.141	-.078	.031	-.088	-.238	-.157	-.042	.185	.125	.061	.190	.177	.026
6	-.112	-.015	-.044	-.158	-.056	-.100	.106	-.046	-.085	.087	.068	-.023	.088
7	-.044	.106	.085	-.076	.007	.023	.207	-.039	-.033	-.043	.002	.036	.026
8	-.158	-.040	.023	-.156	-.223	-.162	.063	.154	.074	.027	.115	.159	.073
9	.178	.130	.164	.120	.133	.185	.230	.095	-.017	.016	.073	-.041	.016
10	.021	.097	.203	.048	.138	.120	.181	.077	.136	-.031	.048	.105	-.039
11							.159	.120	.138	-.165	.072	.130	.044

TABLE 4.06 (continued)

All Schools - Post-test

	11	12	13	14	15	16	17	18	19	20	21	22	23
12							.167	.098	.114	-.032	-.087	.148	.057
13							.227	.062	.034	.015	.055	.039	.089
14							.120	.126	.125	.132	.120	-.046	.026
15							.165	.165	.155	.218	.110	.175	.031
16							.212	-.160	.148	.151	.124	.131	.073
17								-.039	-.037	-.053	-.015	.051	.021
18													-.091
19													-.021
20													-.024
21													.011
22													.049

TABLE 4.06 (continued)

Demographic Characteristics

Teaching Experience

1 - Age
2 - School Level
3 - Years in graded primary
4 - Years in nongraded primary
5 - Total years in primary
6 - Years in intermediate grades
7 - Years in secondary school
8 - Total years
9 - Education
10- Area of preparation for teaching

Principles of the Nongraged School

Acceptance

11 - Individual Differences
12 - Pupil Evaluation & Progress
13 - Curriculum
14 - Organization for Instruction
15 - Instructional Methods
16 - Total Acceptance
17 - Classroom Teaching Experience

Knowledge

18 - Individual Differences
19 - Pupil Evaluation & Progress
20 - Curriculum
21 - Organization for Instruction
22 - Instructional Methods
23 - Provisions Made for Continuous Progress

* = .05%
** = .01%

TABLE 4.07

INTERRELATION OF PRINCIPAL AND TEACHER FACTORS ON KNOWLEDGE AND ACCEPTANCE OF NONGRADING AND PERFORMANCE

		Principals' Administrative Performance											
		1964						1965					
		33	34	35	36	37	38	33	34	35	36	37	38
Principals' Demographic Characteristics	1	-00	06	06	-13	04	-08	06	28	-10	31	18	13
	2	-06	16	-01	09	16	-13	51*	25	30	19	53*	44
	3	-17	67*	-06	31	33	16	50*	39	33	22	78*	56*
	4	11	15	04	-04	33	-03	36	15	-18	20	34	-14
	5	-21	25	-03	-09	-15	25	43	10	12	-13	15	20
	6	-04	18	01	14	-03	01	-07	09	01	05	30	-00
	7	-04	28	13	06	10	28	39	01	-09	12	-01	01
	8	48	12	09	02	31	11	26	-05	26	04	12	-22
	9	34	49	03	15	40	16	-02	36	12	37	29	18
	10	67*	60*	43	48	63*	67*	12	42	41	51*	14	-35
	11	23	40	37	50	20	45	-03	41	09	33	28	28
	12	16	37	-06	08	23	01	-07	28	24	25	28	11
	13	26	58*	33	39	32	43	24	28	12	-07	39	33
	14	16	34	02	14	33	03	26	38	04	33	48	35
Teachers' Knowledge of Nongrading	15	05	23	12	11	-07	08	07	04	02	-04	10	17
	16	31	51*	31	50	35	47	35	27	25	15	32	32
	17	10	46	14	42	12	33	-07	16	09	00	-03	-02
	18	19	-03	04	-08	23	-10	15	-09	06	21	08	07
	19	24	57*	38	65*	34	53*	17	20	06	17	24	28
	20	20	48	20	51*	29	37	-19	30	21	25	23	38

		Principals' Knowledge of Nongrading											
		1964						1965					
		39	40	41	42	43	44	39	40	41	42	43	44
Principals' Demographic Characteristics	1	36	45	35	43	04	52*	13	30	39	58*	20	06
	2	-06	19	21	-19	-01	21	-07	-07	-04	11	-01	12
	3	-04	48	01	-17	14	19	07	11	12	-12	24	-07
	4	16	33	21	15	18	34	18	19	41	15	17	-10
	5	-01	20	-14	24	15	02	15	16	12	26	27	07
	6	17	33	45	41	-15	22	29	25	38	-24	18	30
	7	36	10	-01	-11	41	-22	-19	14	09	-21	-06	07
	8	-23	15	08	15	-14	-12	33	14	30	56*	17	24
	9	23	15	36	45	-40	25	17	29	37	57*	01	08
	10	-10	19	-15	07	13	06	-18	00	-14	-08	-09	14
	11	06	-30	18	34	-04	-14	17	01	28	-02	-14	11
	12	22	17	36	44	-38	26	13	27	36	51*	-04	15
	13	-22	49	16	12	11	20	25	33	22	36	35	-06
	14	13	17	39	48	45	26	-10	25	17	24	-09	-03
Teachers' Knowledge of Nongrading	15	25	09	26	-26	32	-15	28	15	16	26	30	19
	16	-13	47	10	-18	22	14	56*	64*	59*	62*	68*	51*
	17	-12	47	17	35	40	06	-06	08	-04	21	17	-02
	18	24	-06	21	08	25	01	25	07	03	07	21	35
	19	-18	48	-06	09	34	16	46*	27	23	40	42	29
	20	-09	47	-01	-11	41	17	30	27	21	34	38	31

		Principals' Acceptance of Nongrading											
		1964						1965					
		45	46	47	48	49	50	45	46	47	48	49	50
Principals' Demographic Characteristics	1	30	26	25	39	26	04	-28	-04	09	-13	-15	-12
	2	01	13	20	15	-11	-06	-13	-60*	-27	-29	-30	-33
	3	-10	28	16	33	21	-11	28	72*	67*	50*	55*	65*
	4	25	09	14	23	27	06	13	36	37	23	41	25
	5	07	03	20	09	-11	-10	-10	-29	-10	-13	-15	-14
	6	-08	22	30	21	-03	26	40	44	26	37	44	37
	7	23	46	39	35	43	-08	37	24	16	20	22	30
	8	07	05	01	02	14	25	-33	24	24	09	-11	05
	9	03	02	-11	13	16	09	-28	04	-02	-12	-26	-19
	10	01	-03	07	04	-09	30	-26	-25	-45	-34	-20	-31
	11	10	-10	-05	04	22	10	07	-19	-20	-04	11	-22
	12	05	01	-10	16	18	01	34	09	21	24	29	33
	13	-33	40	23	-20	31	-19	-02	50*	61*	30	30	42
	14	-01	-03	14	16	03	06	13	19	26	26	-30	30
Teachers' Knowledge of Nongrading	15	25	-21	01	11	15	24	-25	25	16	11	14	14
	16	13	19	04	-02	-09	21	40	10	-01	14	-11	-09
	17	24	-13	04	-12	22	25	34	38	25	43	39	30
	18	22	20	33	19	29	-14	-06	-05	-18	-03	05	-07
	19	-18	10	01	-07	-15	26	36	17	04	-05	00	01
	20	10	-07	12	02	-04	22	-28	14	07	01	04	05

TABLE 407 (continued)

		Principals' Administrative Performance												Principals' Knowledge of Nongrading												Principals' Acceptance of Nongrading											
		1964						1965						1964						1965						1964						1965					
		33	34	35	36	37	38	33	34	35	36	37	38	39	40	41	42	43	44	39	40	41	42	43	44	45	46	47	48	49	50	45	46	47	48	49	50
Teachers' Acceptance of Nongrading	21	-01	-20	11	-01	13	00	23	33	10	25	35	25	-34	01	10	21	-13	05	38	15	-38	37	27	37	-09	-10	22	19	25	24	-32	27	05	06	19	21
	22	10	26	20	22	18	14	-04	11	14	20	21	-05	13	30	-08	09	17	13	26	28	40	47*	27	35	27	-00	-08	-12	30	00	37	27	-04	09	21	21
	23	16	46	-06	05	12	10	36	18	30	-00	00	19	-18	45	04	-09	09	12	29	38	40	55*	35	35	36	35	25	22	35	-03	49*	25	04	17	22	28
	24	10	23	-07	07	11	-04	01	06	20	07	25	-02	34	03	-15	01	17	10	-09	18	21	31	-10	32	24	-05	07	13	38	-01	43	64*	47*	44*	44*	57*
	25	18	00	27	31	-09	15	-06	30	01	39	35	-18	-11	31	02	31	22	15	18	29	43	46*	19	26	-02	24	17	10	00	25	34	18	-07	01	09	17
	26	-04	27	-18	17	14	11	04	14	10	21	27	-09	28	25	-05	15	11	05	34	32	45*	54*	32	40	26	06	-10	13	33	08	45	35	10	17	26	33
Teachers' Classroom Performance	27	22	55*	25	49	30	36	-01	-30	31	32	-09	21	07	35	12	03	52*	24	27	04	-02	-00	-14	08	36	33	28	-33	38	39	12	11	12	-08	05	-03
	28	09	37	04	19	-15	11	23	52*	49*	44*	29	42	24	39	01	18	34	14	28	14	-03	18	14	-04	12	09	19	11	00	23	08	05	01	-07	-05	01
	29	50	46	41	38	41	49	25	26	29	13	-18	18	21	-04	-17	20	20	-07	04	40	31	42	10	05	46	33	33	38	48	49	07	-02	-04	16	-08	-12
	30	35	30	31	25	31	28	05	00	11	03	19	-01	36	28	26	-09	18	33	-16	06	06	19	26	-12	22	-10	00	-03	06	04	-01	09	-02	-04	16	12
	31	38	25	18	-07	29	35	02	33	15	30	-06	16	05	14	31	10	-17	18	25	-01	15	09	28	07	37	25	26	38	30	42	33	04	-15	-04	-02	-07
	32	26	47	25	45	36	42	31	23	49*	16	16	31	-01	51*	32	15	28	36	20	38	47*	52*	08	26	12	08	12	16	09	11	-03	11	08	04	04	-04
Principals' Administrative Performance	33													27	-16	22	10	19	30	-20	-30	-20	-22	-27	03	32	21	21	18	22	45	13	-43	-26	-19	-25	-15
	34													14	47	-00	17	25	-17	19	-17	21	10	-05	13	31	40	32	43	42	34	-06	-32	-18	-16	-20	-24
	35													-03	15	27	17	17	21	14	-26	-15	-05	-01	-15	35	22	28	31	24	24	-05	-27	-19	-27	-23	-19
	36													-16	44	29	16	56	45	15	-07	25	21	-03	08	17	02	04	16	15	22	-11	-29	-13	-21	-23	-24
	37													-10	21	23	-09	42	30	-16	-21	-04	08	-31	15	07	01	02	08	-01	13	-20	-69	-49	-42	-49	-51
	38													-08	28	21	06	23	26	06	-20	05	04	-13	07	25	20	22	25	24	28	-11	-53	-35	-37	-38	-39
Principals' Knowledge of Nongrading	39																									20	39	25	39	41	08	-37	19	09	01	04	-08
	40																									07	-05	02	07	03	03	-42	-06	-01	-23	-10	-23
	41																									19	16	-01	19	28	28	-24	03	03	-04	02	-14
	42																									22	35	29	37	28	22	-63	-15	-13	-36	-37	-41
	43																									16	42	37	19	16	02	-37	12	19	-04	06	-02
	44																									17	32	21	34	31	11	-15	-08	-23	-03	-13	-18

TABLE 4.07 (continued)

Principals' Demographic Characteristics

1. Age
2. Primary Teaching Experience
3. Intermediate Teaching Experience
4. Secondary Teaching Experience
5. Total Teaching Experience
6. Area of Preparation
7. Elementary Administration Preparation
8. Other Administrative Preparation
9. Administrative Experience, Graded School
10. Administrative Experience, Nongraded School
11. Other Administrative Experience
12. Total Administrative Experience
13. Education
14. Years in Present Position

Teachers' Knowledge of Nongrading

15. Individual Differences
16. Pupil Evaluation and Progress
17. Curriculum
18. Organization of Instruction
19. Instructional Methods
20. Total

Teachers' Acceptance of Nongrading

21. Individual Differences
22. Pupil Evaluation and Progress
23. Curriculum
24. Organization for Instruction
25. Instructional Methods
26. Total Acceptance

Teachers' Classroom Performance

27. Identification of Individual Differences
28. Pacing Instruction
29. Materials of Instruction Available
30. Library Services
31. Adjusting Learning Time
32. Classroom Organization

Principals' Administrative Performance

33. Involving People
34. Making Policy
35. Determining Roles
36. Setting Goals
37. Appraising Programs
38. Final Standing

Principals' Knowledge of Nongrading

39. Individual Differences
40. Pupil Evaluation and Progress
41. Curriculum
42. Organization for Instruction
43. Instructional Methods
44. Total Knowledge

Principals' Acceptance of Nongrading

45. Individual Differences
46. Pupil Evaluation and Progress
47. Curriculum
48. Organization for Instruction
49. Instructional Methods
50. Total Acceptance

* = .05%
** = .01%